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MONTHLY PROGRESS REPORT ★ SECTION

*Fitz*

# HEALTH

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31 AUGUST 1944

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# HEALTH

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DISEASE AND INJURY

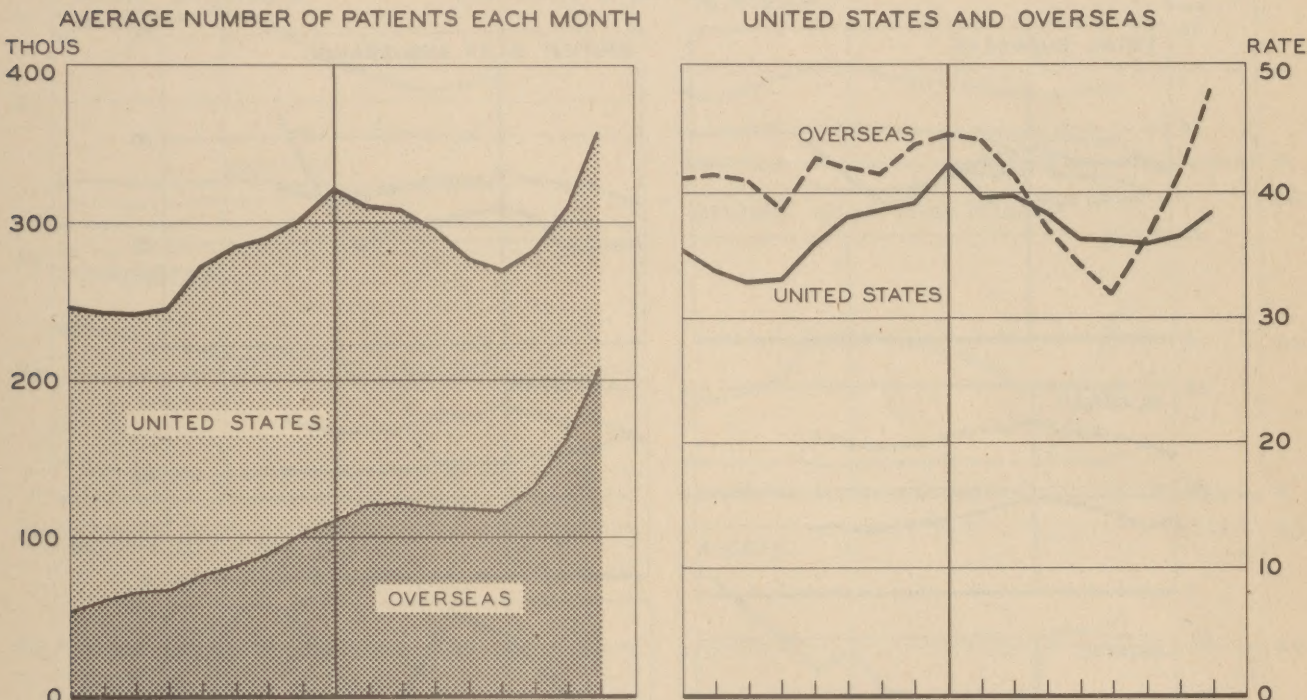
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NONEFFECTIVE RATES, U. S. AND OVERSEAS

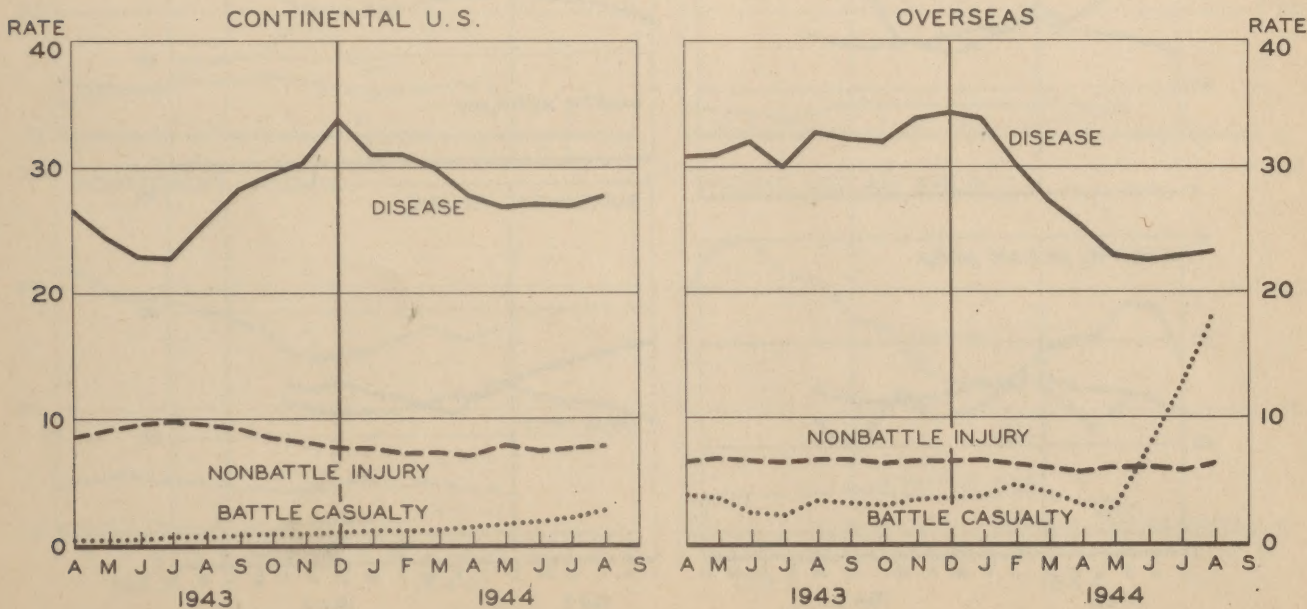
The average noneffective rate in the U. S. increased slightly during August to about 38 per thousand strength while the provisional overseas rate moved upward to 48, an increase of 16 percent. The steady rise in the overseas rate since May has been almost entirely the result of combat activity in France and Belgium, the disease and nonbattle injury components of the rate being lower this year than for comparable months during 1943. The increase in the U. S. rate and its generally high average level are attributable to the hospitalization of evacuees from overseas and of men screened from units moving overseas. Correction of the U. S. rate would lower it to perhaps 30 per thousand strength. Correspondingly, the overseas rate for August would be even higher were evacuees in the U. S. to be charged against the overseas strength.

The first panel of the accompanying chart gives the absolute number of noneffectives in the U. S. and overseas, computed as an average throughout each month. The other panels give noneffectives per thousand strength by major cause of admission.

AVERAGE NUMBER OF NONEFFECTIVES PER THOUSAND STRENGTH  
ALL CAUSES



BY MAJOR CAUSE



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# DISEASE AND INJURY

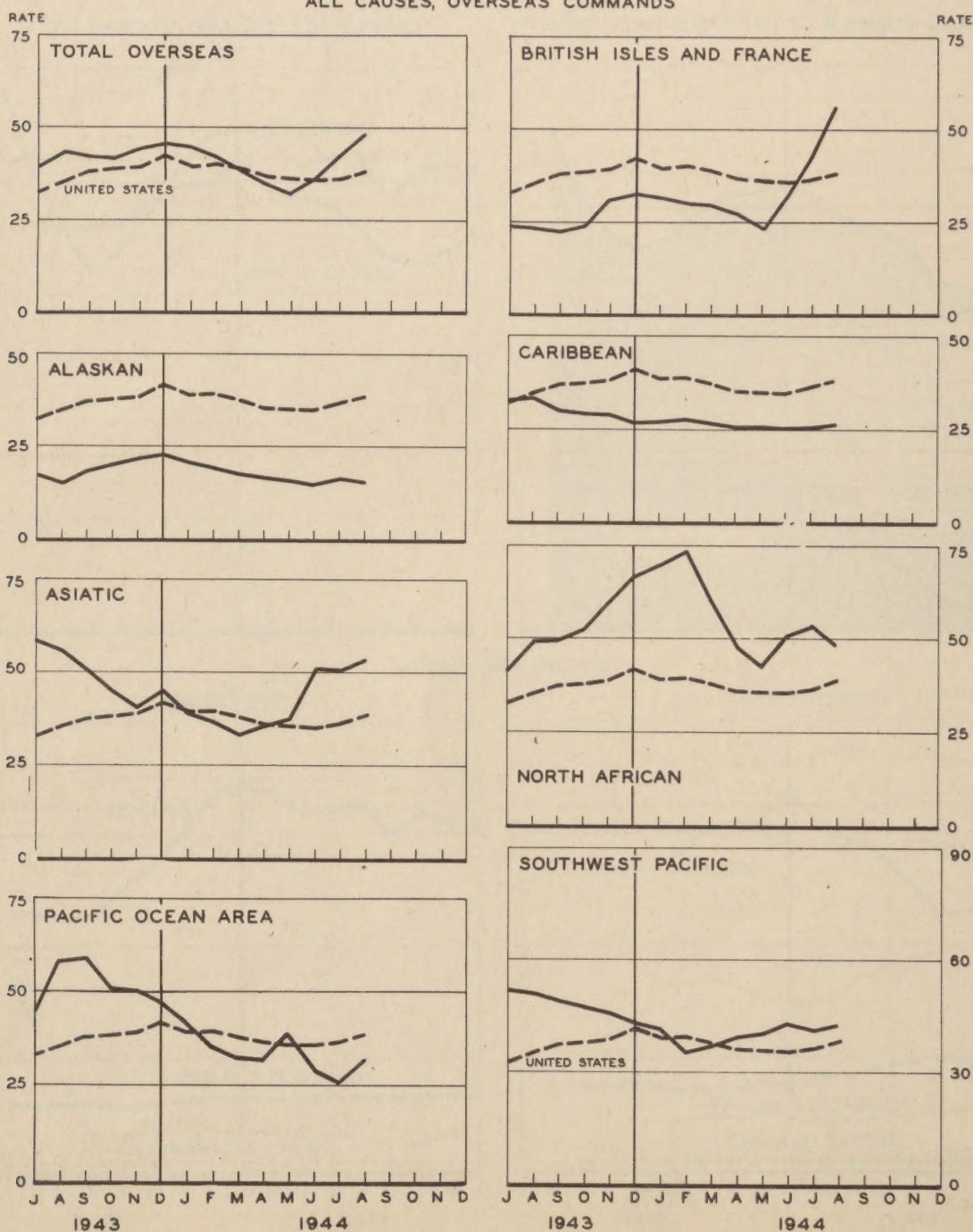
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## TOTAL NONEFFECTIVE RATES, OVERSEAS THEATERS

On 15 June administrative control of parts of the South Pacific section of the Pacific Theater passed to the Southwest Pacific Theater, and the South Pacific section became a base command of what is now the Pacific Ocean Area. Medical reports received from the field have been altered to conform to the new lines of demarkation, and the noneffective rates previously shown separately on this and the following page for the South and Central Pacific areas have been combined for the Pacific Theater or the Pacific Ocean Area. The most recent points are provisional, being based upon telegraphic reports to The Surgeon General and upon telegraphic casualty reports to The Adjutant General.

Most of the increases in total noneffectiveness which occurred during August were attributable to increases in the battle casualty component. The greatest increase occurred in the British Isles and France, where the rate advanced about one-third under the influence of operations in France. The movement of the noneffective rate for the Army overseas is influenced, in large measure, by the movement of the rates for troops in Europe.

### AVERAGE NUMBER OF NONEFFECTIVES PER THOUSAND STRENGTH ALL CAUSES, OVERSEAS COMMANDS



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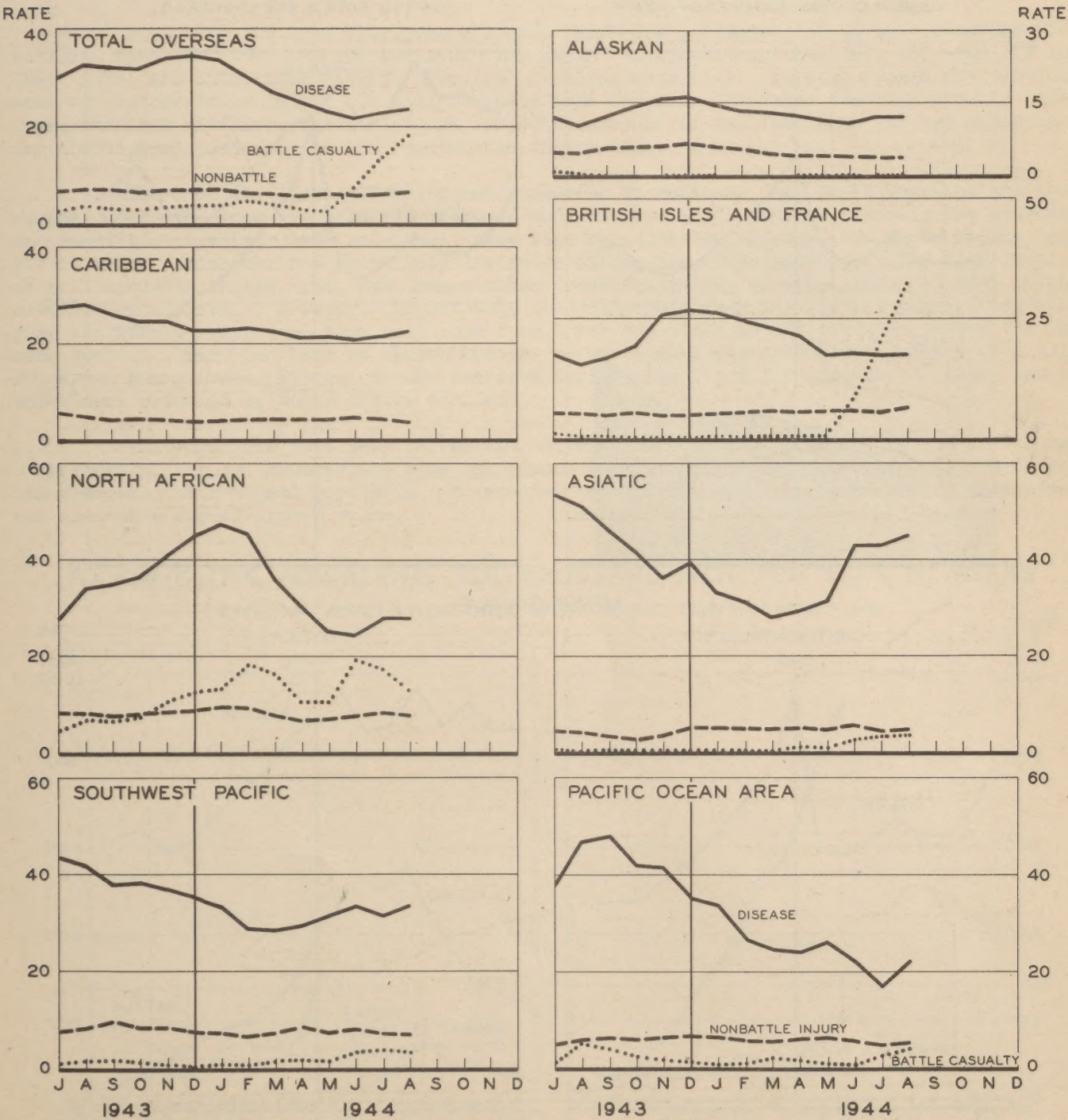
DISEASE AND INJURY

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COMPONENTS OF THE NONEFFECTIVE RATES, OVERSEAS THEATERS

The charts below give the disease, nonbattle injury, and battle casualty components of the total noneffective rates shown on the preceding page. The figures for the British Isles are quite preliminary estimates prepared in advance of complete telegraphic information. Noneffectiveness attributable to battle wounds decreased for the second successive month in North Africa despite the landing in Southern France. Both the Fifth Army in Italy and the Seventh in France sustained relatively few casualties during the month, permitting evacuation and return to duty to reduce the backlog of wounded noneffectives. For the Army overseas noneffectiveness from battle causes was about 75 percent of disease noneffectiveness and accounted for about 40 percent of all patients in hospital and quarters. Disease as a cause of noneffectiveness increased in the Southwest Pacific and Asiatic theaters and in the Pacific Ocean Area. Noneffectiveness from nonbattle injury remained relatively constant.

AVERAGE NUMBER OF NONEFFECTIVES PER THOUSAND STRENGTH  
OVERSEAS COMMANDS



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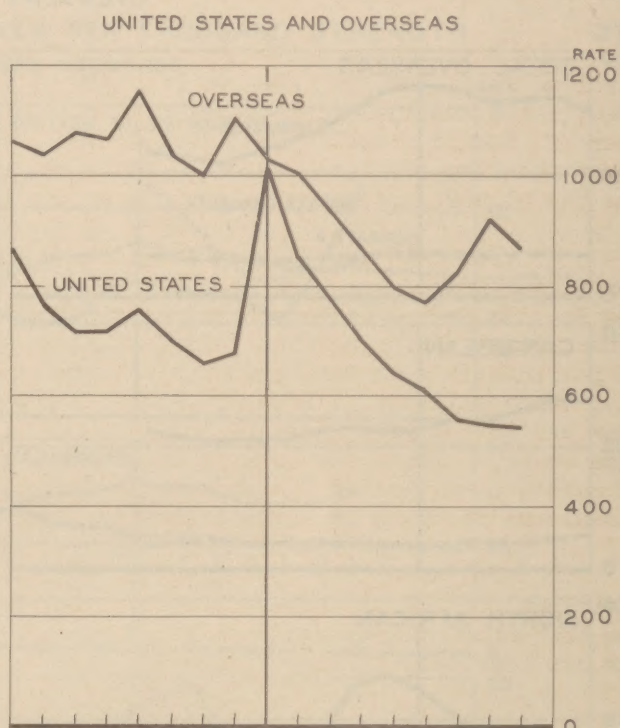
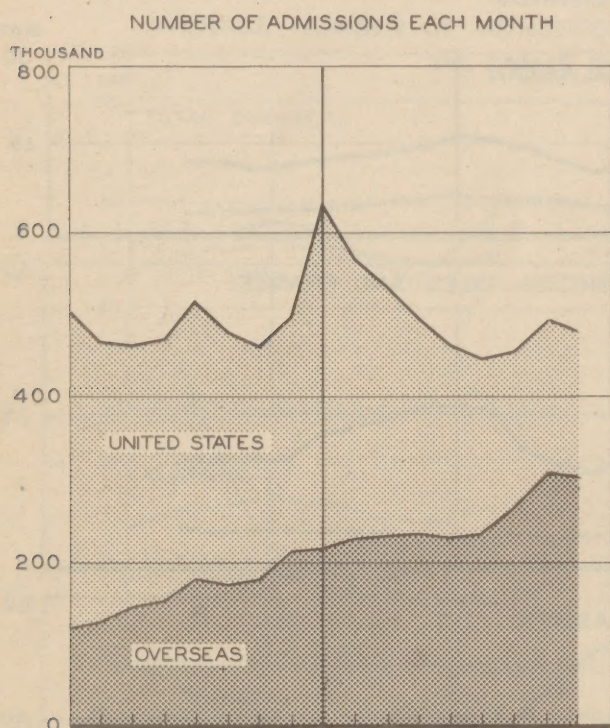
# DISEASE AND INJURY

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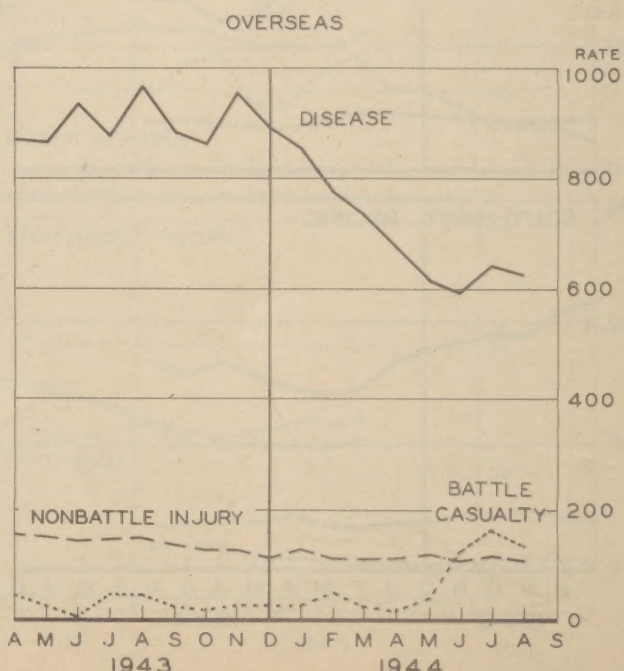
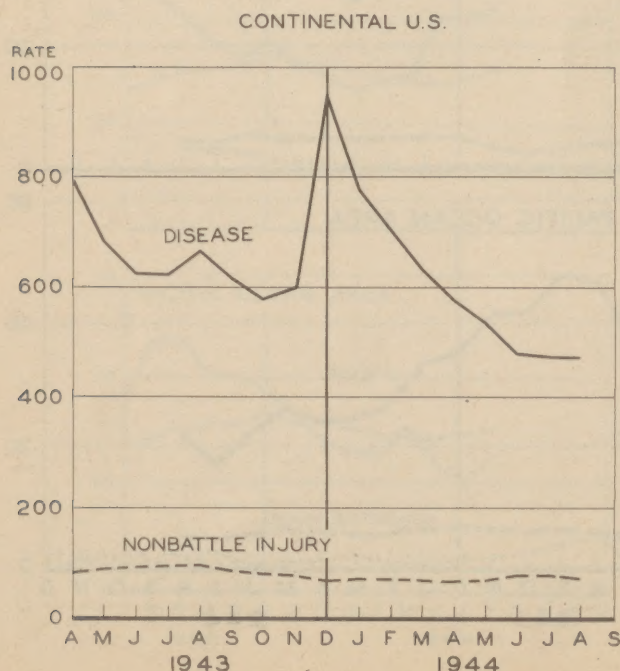
## DISEASE, INJURY AND BATTLE CASUALTY

The admission rate for all causes in the U. S. declined during August, for the eighth successive month, reaching a new low of 543 admissions per thousand men per year. Admissions for nonbattle injury have remained relatively constant for the last three months, although at a slightly higher level than that which prevailed during the first 5 months of the year. The rates for the forces overseas are quite provisional since regular reports on the health of troops in the British Isles and France have not been received since the first week in July. In addition no reports have been received from North Africa since the invasion of Southern France. Informal data from ETO and casualty reports to the AGO have been used to supplement the information which has been forwarded to the SGO by the other theaters. The most significant change in the overseas admission pattern was a decrease in the admission rate for battle casualty, the Fifth and Seventh Armies in NATO having sustained fewer casualties in August than in July.

### DISEASE, INJURY, AND BATTLE CASUALTY, ADMISSIONS PER THOUSAND MEN PER YEAR ALL CAUSES



### MAJOR CAUSES



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DISEASE AND INJURY

POLIOMYELITIS

The panels in the chart below compare the incidence of poliomyelitis in the civilian and military populations in the United States during the epidemic periods of 1943 and 1944 to date. The accompanying table gives the annual admissions and rates for the Army in the Continental United States from 1933 through 1943 and includes data for 1944 through 2 September.

POLIOMYELITIS, ADMISSIONS PER THOUSAND MEN PER YEAR  
Army in the Continental U. S.

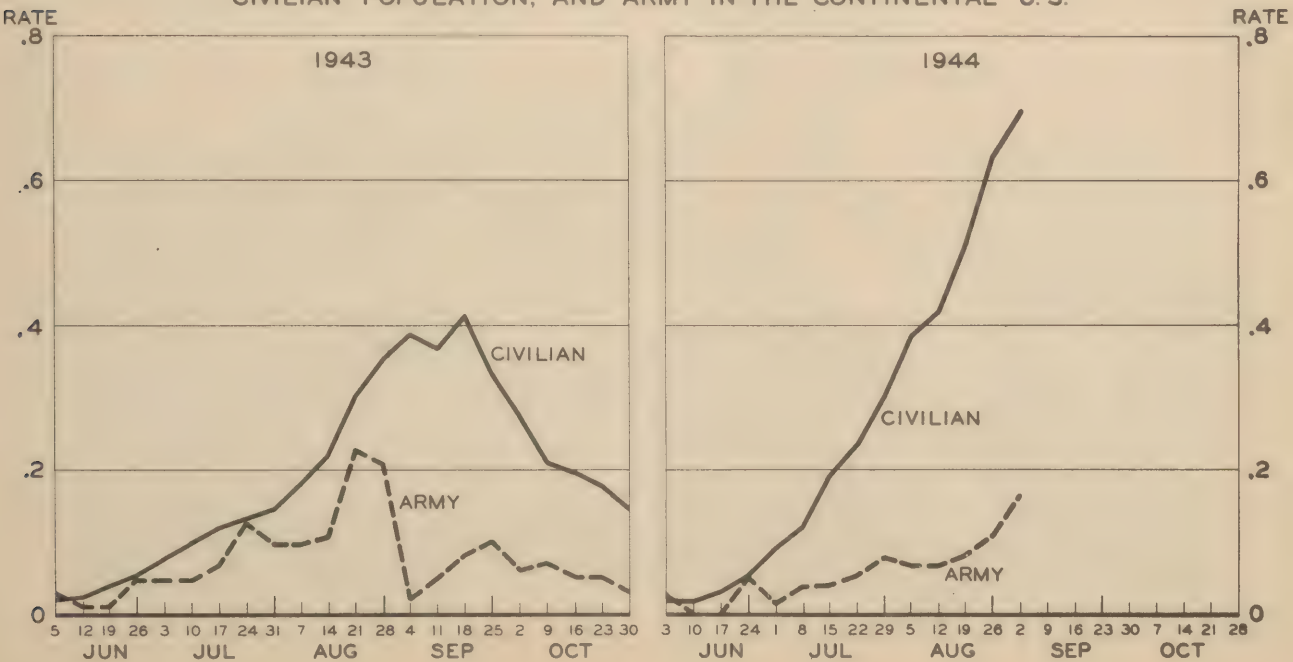
Year	Cases	Rate	Year	Cases	Rate	Year	Cases	Rate
1933	1	.01	1937	1	.01	1941	28	.02
1934	8	.04	1938	3	.02	1942	84	.02
1935	3	.02	1939	1	.01	1943	202	.04
1936	1	.01	1940	5	.02	1944	85	.03

Both 1943 and 1944 have been epidemic years for poliomyelitis in this country. The civilian rate for 1943 was .09 per 1,000 per annum in comparison with .07, .07, and .03 for 1940, 1941, and 1942 respectively. The 1944 civilian rate will probably exceed any previous year of record since 1916. It will be noted that the Army incidence has consistently been lower than the civilian, which is to be expected in view of the fact that the age group having the highest incidence is not represented in the Army.

The 1944 civilian epidemic first appeared in Kentucky and North Carolina and then spread northward along the Atlantic seaboard and into the North Central states. The Mountain and Pacific states have been relatively free from the disease. Most of the areas having high attack rates this year had relatively low rates during the 1943 epidemic. The distribution of poliomyelitis in the Army has been similar seasonally and geographically to that in the civilian population. However, the military incidence this year has been no higher than last year and recent rates have been only one-fourth to one-sixth of the civilian rates for the same weeks. There has been no concentration of cases at individual posts. There were only 29 cases among United States troops overseas during the first five months of 1944, but 13 cases were reported by North Africa for June.

Poliomyelitis is a very infrequent disease in military groups by reason of its age distribution. It is, however, of some importance because of the high case fatality rate and the frequency of residual paralysis. No special control measures are warranted at this time, nor are there any of proven value.

POLIOMYELITIS, ADMISSIONS PER THOUSAND MEN PER YEAR BY WEEKS  
CIVILIAN POPULATION, AND ARMY IN THE CONTINENTAL U. S.





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## DISEASE AND INJURY

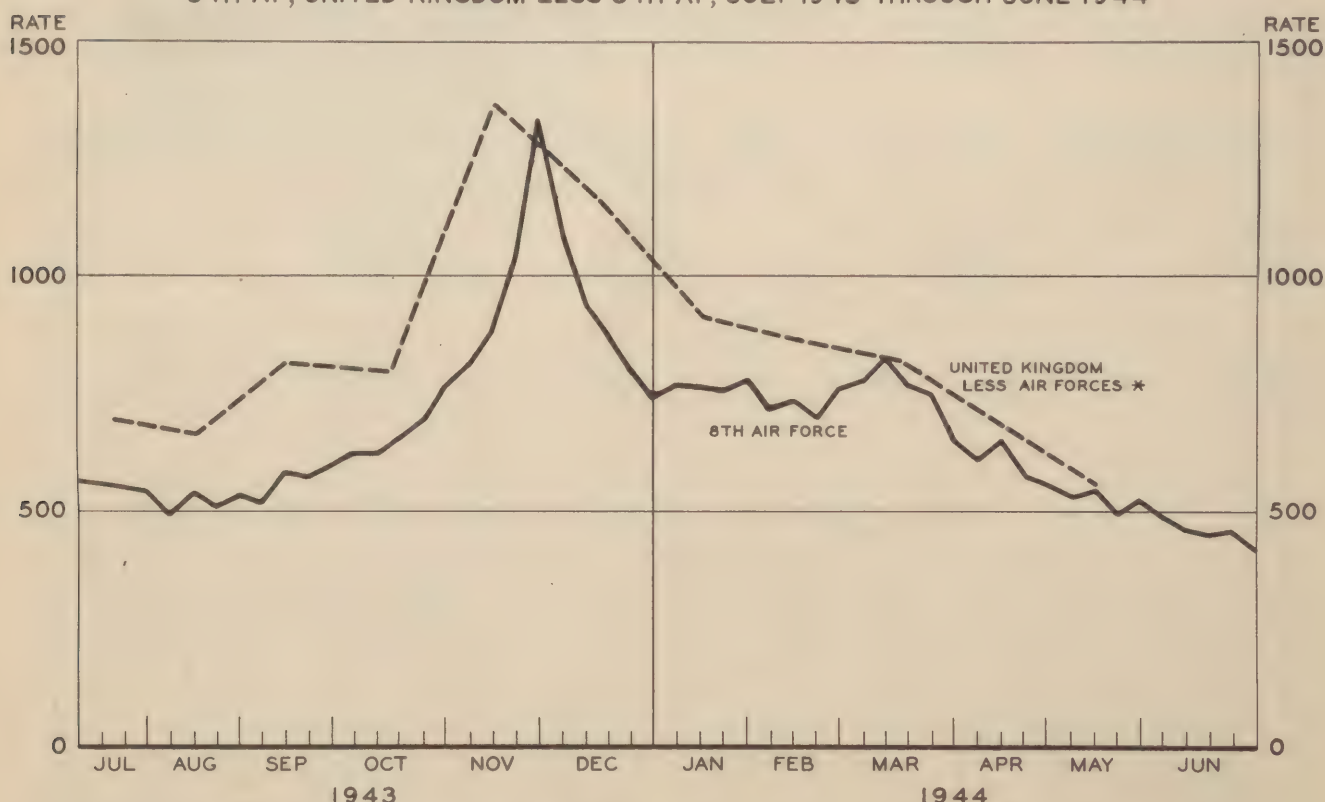
### HEALTH OF THE EIGHTH AIR FORCE

The average admission rate for disease, nonbattle injury, and wounded in action among Eighth Air Force personnel has been consistently below that for non-Air Force troops in the European Theater. For example, during the fiscal year ending 30 June 1944 the average admission rate for the Eighth Air Force was 692 per thousand mean strength per year, whereas the rate for Army personnel in the ETO other than Air Forces was 817. Similarly, the total noneffective rate of 15.5 for the Eighth Air Force was less than that of 30.3 for non-Air Force troops of the ETO. However, with the increasing pace of operational flying, especially during 1944, this difference is diminishing and the admission rates for the Eighth Air Force now more nearly equal those for other troops in the theater. The rates of admission to sick report, of course, do not reflect the considerable number of men killed, captured, or missing in action, a number which is relatively high for personnel engaged in operational flying. Air Forces personnel are especially subject to losses which are classified as missing in action, this component constituting about 75 percent of battle casualties. Since some of these men are undoubtedly wounded or killed, the recorded rates for these categories are lower than they would be if the missing component for Air Forces personnel were the same as that for ground personnel.

The largest single cause of admission for disease in the Eighth Air Force has been common respiratory infection. The incidence of this group of diseases among Eighth Air Force personnel closely parallels the theater incidence, except that during March of 1944 the Eighth Air Force experienced a distinct secondary rise following the winter peak in November, at the time of the influenza epidemic. This phenomenon did not occur in the U. S. either among flying or non-flying personnel.

Although admission rates for disease and nonbattle injury for flying personnel are consistently above those for non-flying personnel of the Eighth Air Force, they pertain to less than 20 percent of the total Eighth Air Force strength and thus have less influence upon the total rate than do those for non-flying personnel. The differential may arise from a tendency to admit flying personnel to quarters for comparatively mild respiratory and other conditions more or less as a prophylactic measure rather than from a much greater susceptibility or exposure of flying personnel to physical disability. For the twelve months ending June 1944 admissions for disease and for nonbattle injury averaged 709 and 75 for flying personnel and 604 and 71 for all Eighth Air Force personnel.

ADMISSIONS FOR ALL CAUSES PER THOUSAND MEN PER YEAR  
8TH AF, UNITED KINGDOM LESS 8TH AF, JULY 1943 THROUGH JUNE 1944



\* Includes W.I.A.- 9th A.F., Oct. 1943 thru Jan. 1944.

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## DISEASE AND INJURY

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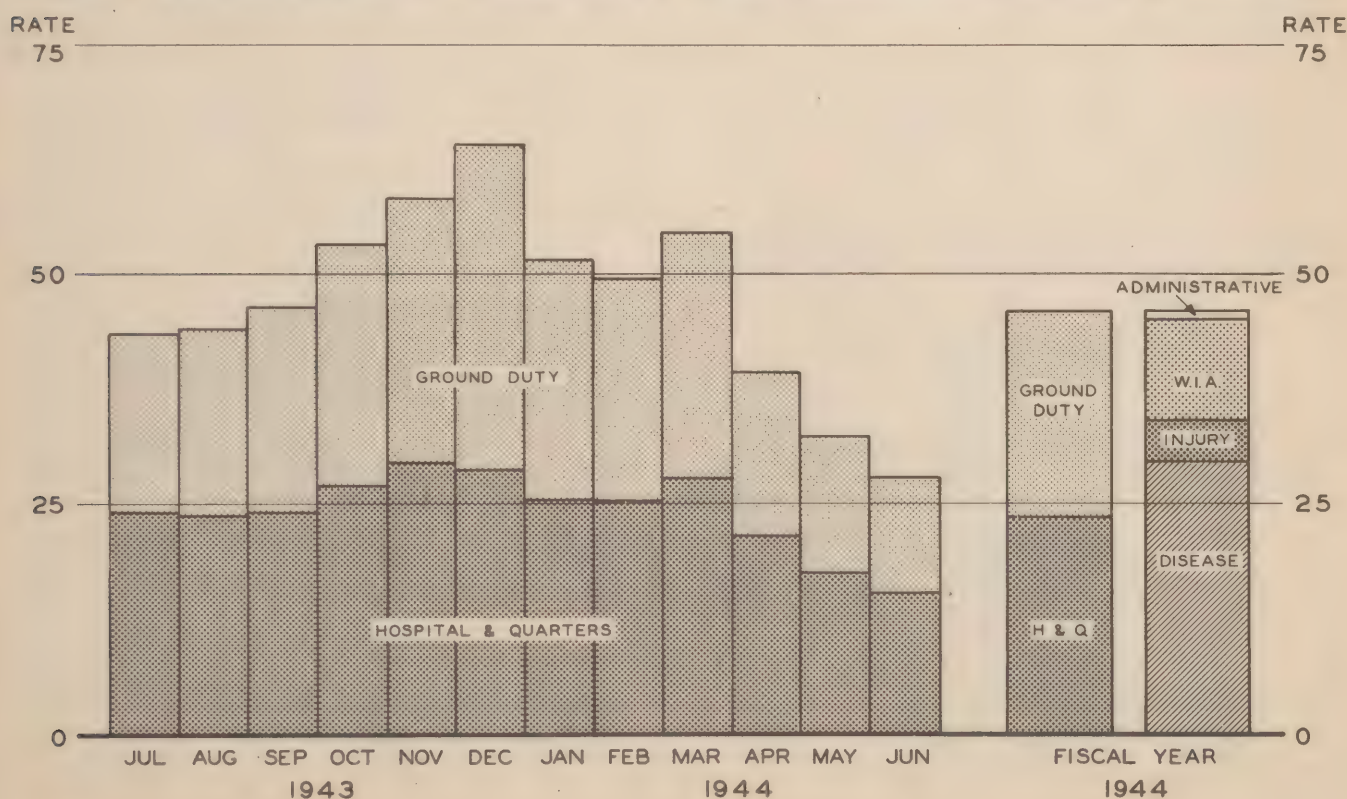
## HEALTH OF THE EIGHTH AIR FORCE (Continued)

Flying personnel become noneffective not only by virtue of admission to sick report but also by removal to ground duty because of disease or injury. During the fiscal year 1944, when the rate of admission to sick report averaged 941 per 1,000 flying strength per year, men were grounded for medical reasons at the rate of 1,004 per 1,000 flying strength per year. This ratio of 50 percent also extends to the flying noneffective rates which result from the two types of removal from flying duty, so that at any one time about half of the men unable to perform flying duty for medical reasons are on a ground duty status. The accompanying chart traces the movement of the noneffective rate according to these two components. For the entire year the second bar at the right of the series subdivides the average noneffective rate according to its disease, injury, and battle casualty components. The top section of the bar measures noneffectiveness from flying duty for administrative reasons which averaged .8 per thousand flying strength for the fiscal year 1944.

Flying personnel suffer from certain hazards peculiar to flying, notably aero-otitis media and frostbite. Aero-otitis is directly related to flight and depends upon pressure changes occasioned by exposure to low atmospheric pressure in high altitude flying. During the months August 1943 through February 1944 individuals were temporarily removed from flying duty for aero-otitis at the rate of 4.3 per 1,000 flying hours in the Eighth Air Force. A comparison was made with cases among crew members of the Fifteenth Air Force engaged in strategic bombing over Southern Europe, where flying was performed generally at lower altitudes than over Western Europe. Computed on the basis of combat crew members dispatched on operational missions, the rates for the Eighth Air Force are more than four times those for the Fifteenth Air Force. Studies of the relation between the incidence of aero-otitis and the type of aircraft flown showed that the highest incidence occurred among heavy bomber combat crew members and the lowest incidence among fighter pilots. It thus appears that descent after long periods at high altitudes is of greater importance in the production of aero-otitis media than rapid ascent or descent as in the case of fighters, or exposure to medium altitudes for a moderate length of time as in the case of medium bombers.

The importance of frostbite among flying personnel is emphasized by the fact that, among Eighth Air Force crew members returning from operational missions during the fiscal year 1944, more had sustained frostbite injuries than wounds from enemy action. Only 1.9 combat crew members per thousand dispatched returned wounded, whereas 2.3 per thousand suffered from frostbite. Frostbite accounted for 43 percent of all wounds or injuries received in action by returning combat crew members. However, the magnitude of the number missing,

## NONEFFECTIVES FOR FLYING DUTY PER THOUSAND FLYING STRENGTH



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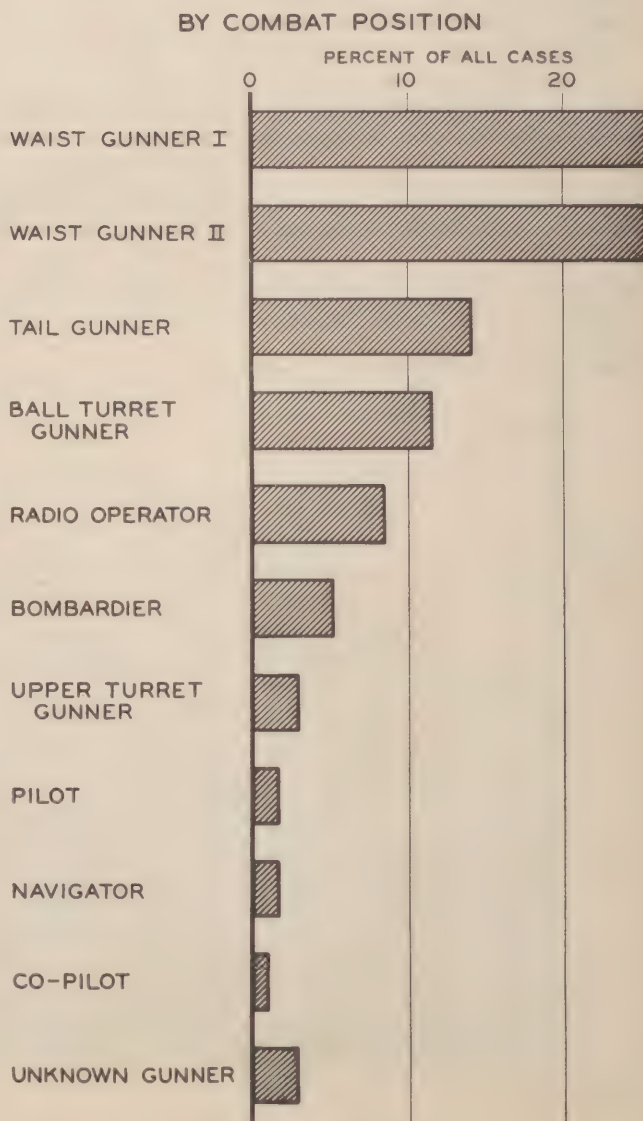
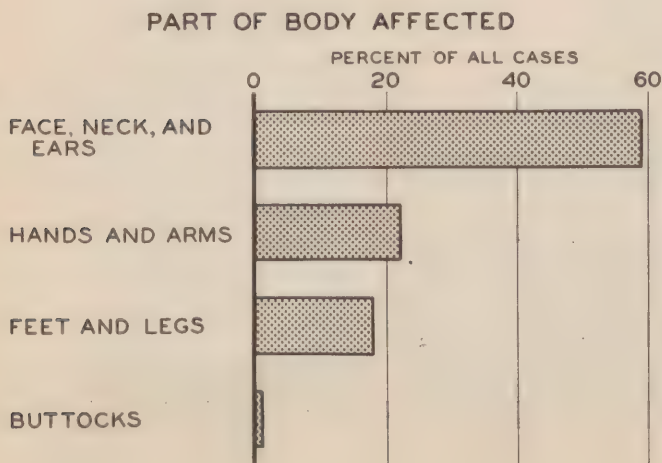
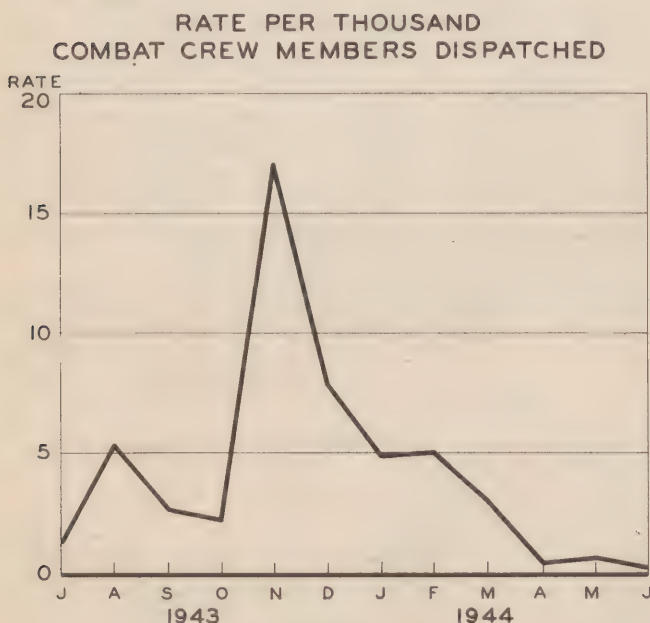
# DISEASE AND INJURY

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## HEALTH OF THE EIGHTH AIR FORCE (Continued)

19.5 per thousand men dispatched, may operate to reduce the ratio of wounds to frostbite injuries. Fifty-nine percent of the cases of frostbite involved the face, neck, and ears, where the injury is often so mild that the patient loses only a few days from combat duty. For this reason the net effect upon the noneffective rate may well have been less than would otherwise have been expected from this usually serious injury. The greatest single cause of frostbite was windblast, 52 percent of the cases being traced to this factor. The second most common cause was the failure of electrical equipment, accounting for 22 percent. The first panel below traces the incidence of frostbite during the year in terms of injuries per 1,000 crew members dispatched. The average for the fiscal year was 2.5 in comparison with 4.4 per thousand during the previous year. Although the incidence of frostbite depends in part upon the season of the year and the duration of flight at higher altitudes, it is plain that the corrective measures instituted by the Eighth Air Force have had tremendous effect. The improvement is attributed to the installation of windows for the waist gunners and radio operator, use of face masks for individuals in the more exposed positions, improvement in the supply of electrically heated equipment, education of personnel, and other measures. The waist gunners were the most frequently affected by frostbite among all combat crew members of heavy bombers, as shown in the right-hand panel below. However, the tail and ball turret gunners also suffered from frostbite much more often than other crew members. Analysis of the affected body region in relation to combat position reveals that each of the exposed positions has its own peculiar hazard. For example, among waist gunners who were exposed to direct windblast entering the waist through the openings for the gun mounts, about 75 percent of the cases involved the face, neck, and ears. Tail gunners suffered frostbite of the hands and feet, but more particularly of the face, neck, and ears. The ball turret gunner suffered

## CASES OF FROSTBITE AMONG HEAVY BOMBER CREWS OF THE 8TH A.F.





DISEASE AND INJURY

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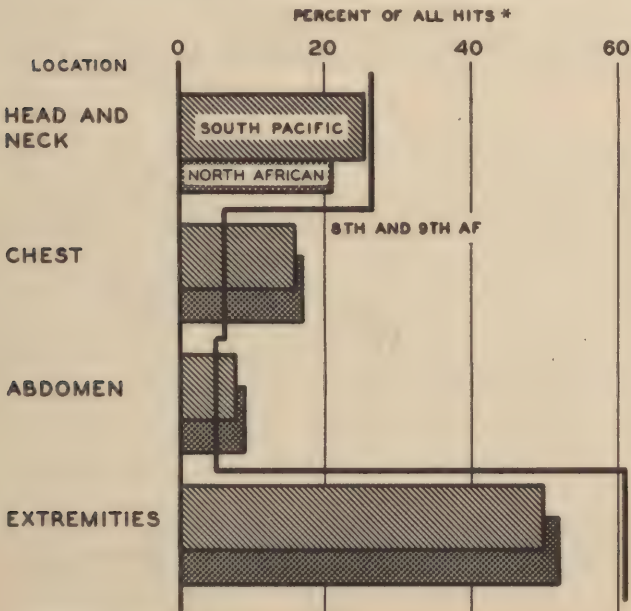
HEALTH OF THE EIGHTH AIR FORCE (Continued)

equally from frostbite of the hands and face, but much more heavily from frostbite of the feet. The bottom left-hand panel on the previous page gives the distribution of cases of frostbite by body area affected for all crew members.

During the year ending June 1944 it is reported that 4,084 individuals of the Eighth and Ninth Air Forces returned to base wounded or killed. Of the 1,435 killed in action, 17 percent succumbed to enemy gunshot wounds, 80 percent died of battle injuries sustained during or as a result of combat, and 3 percent died of anoxia. The overall fatality was about 35 percent. There were others among the captured and missing who were wounded or killed. The battle casualty statistics published by the AGO yield a fatality rate of 56 percent or more if only known killed and wounded are compared, and 16 percent if all Air Corps casualties are studied for this theater. Of those returning, 65 percent had been struck by flak, 24 percent by cannon, 6 percent by plane parts, and 5 percent by machine-gun bullets. During the first year of operations against the enemy, cannon shells and fragments caused 43 percent, and flak only 33 percent, of the wounds received. These figures reflect the decrease in enemy opposition in the air and the relative increase in ground defenses. The regional distribution of hits parallels that previously reported for ground forces (HEALTH for 31 July), as may be seen from the accompanying chart, except that proportionately fewer hits were made in the chest and abdominal areas. This finding may be partly attributable to the bias arising from the exclusion of the missing, but it is also suggestive of the measure of protection received from the flak suit, discussed in HEALTH for 31 July, for there is no reason to suppose that the regional location of hits should vary appreciably between air and ground troops. During the seven-month period prior to the introduction of body armor, the incidence of wounds was 6.5 wounds per 1,000 crew members dispatched. For the seven months following the introduction of body armor, the rate averaged 2.6 per 1,000. Part of the decline is attributable to decreased enemy opposition in the air, but that a considerable portion derives from the introduction of the flak suit is indicated by the fact that battle damage to aircraft declined only 18 percent while the incidence of wounds declined 60 percent after body armor was adopted.

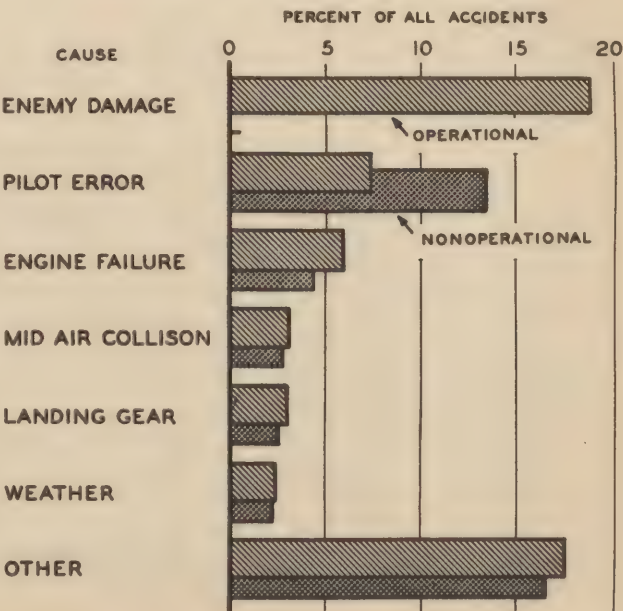
During the fiscal year 1944, 1,407 aircraft accidents occurred among the personnel of the Eighth and Ninth Air Forces, of which 58 percent were operational in character. Of the 5,923 men involved in these accidents, 24 percent were killed, 18 injured, and the remainder uninjured. A third of the accidents occurring during operational flights resulted from plane damage by enemy action. The crash landing is typical of this group. Among non-operational accidents the same proportion derived from pilot error. About 20 percent of the injured and killed were burned in some degree, and the fatality rate in this group exceeded 80 percent, the average fatality among those having all types of injuries being about 55 percent. The right-hand panel below details the incidence of operational and nonoperational aircraft accidents as percentages of all accidents, both operational and nonoperational.

DISTRIBUTION OF HITS BY BODY AREA



\* Wounded plus killed.

AIRCRAFT ACCIDENTS BY CAUSE





## DISEASE AND INJURY

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## PREVENTION OF LOSS OF MANPOWER FROM PSYCHIATRIC DISORDERS

## ROLE OF DANGER

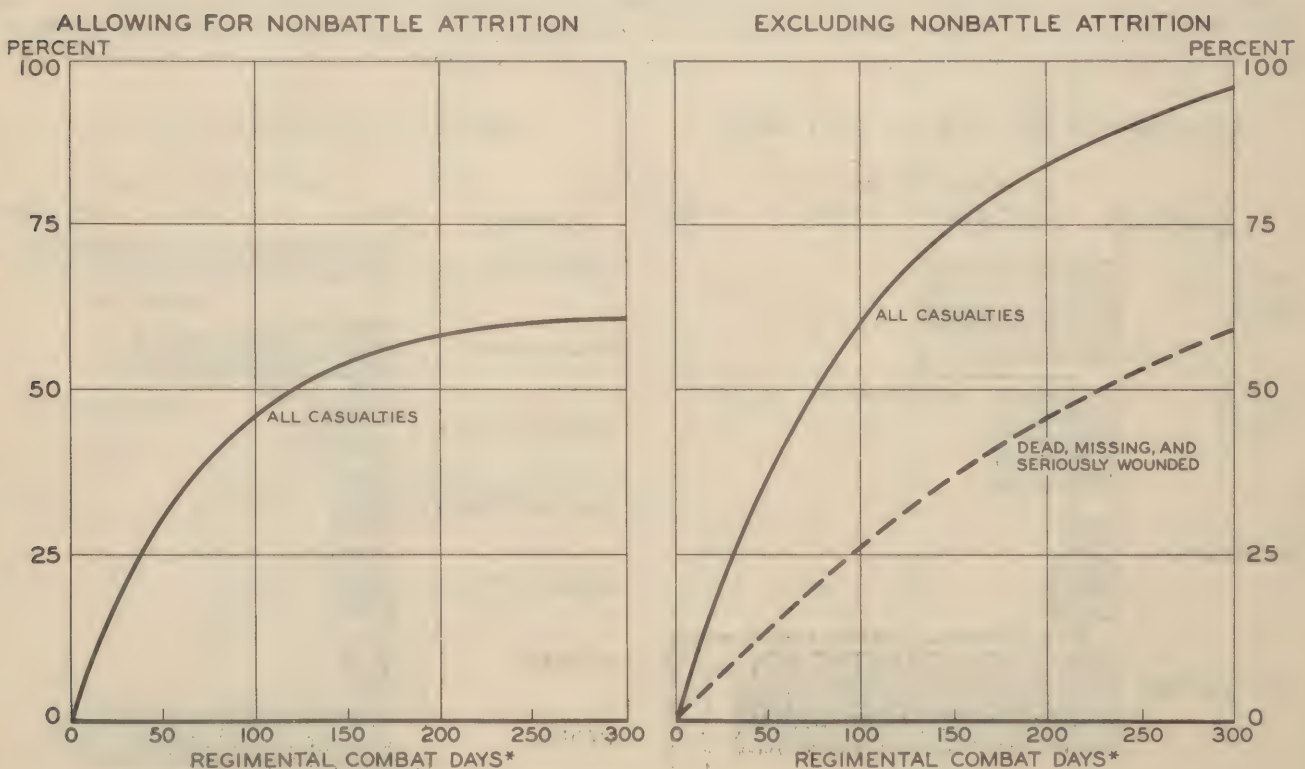
The key to an understanding of the psychiatric problem is the simple fact that the danger of being killed or maimed imposes a strain so great that it causes men to break down. One look at the shrunk, apathetic faces of psychiatric patients as they come stumbling into the medical station, sobbing, trembling, referring shudderingly to "them shells" and to buddies mutilated or dead, is enough to convince most observers of this fact. There is no such thing as "getting used to combat". Each man "up there" knows that at any moment he may be killed, a fact kept constantly before his mind by the sight of dead and mutilated buddies around him. Each moment of combat imposes a strain so great that men will break down in direct relation to the intensity and duration of their exposure. Thus psychiatric casualties are as inevitable as gunshot and shrapnel wounds in warfare. Prevention can be thought of only in terms of preventing needless waste of manpower.

Of all arms, the infantry is exposed to the greatest danger (See HEALTH for June). The degree of danger faced by members of the rifle battalions of the Fifth Army is illustrated by the two charts below, which have been prepared on the basis of a recent study of attrition and replacement in the Fifth Army. The left-hand panel gives the proportion of the original strength of rifle battalions who became battle casualties after their units had been in combat for any given number of days. It is seen that 50 percent of the original strength were either killed, wounded, captured or missing in action by the time the regiment had been in combat 120 days. The percentage would be even higher were it not for the fact that many men were removed from combat for other reasons before they had a chance to become battle casualties. The right-hand panel shows what the chances would be if it were not for non-battle attrition. The upper curve shows the total battle casualties and the lower curve just the killed, died of wounds, seriously injured, and missing.

## EXTENT OF LOSS FROM PSYCHIATRIC DISORDERS

Precisely because the infantry is exposed to the greatest danger it also suffers the greatest loss of manpower from psychiatric disorders. In the North African Theater neu-

PERCENT OF ORIGINAL STRENGTH OF RIFLE BATTALIONS IN ITALY WHO HAD  
BECOME BATTLE CASUALTIES AFTER SUCCESSIVE COMBAT DAYS FOLLOWING  
THE TIME THEIR REGIMENTS ENTERED COMBAT



\* Ten combat days are equivalent to 17 calendar days.



## DISEASE AND INJURY

~~SECRET~~PREVENTION OF LOSS OF MANPOWER FROM PSYCHIATRIC DISORDERS (Continued)

ropsychiatric casualty rates of 1,200 to 1,500 per 1,000 strength per year were not uncommon in rifle battalions, whereas corresponding units of all other branches rarely suffered rates above 20 to 30. In general 15 to 20 percent of the total nonfatal combat casualties (N-P plus WIA) were neuropsychiatric. Of more significance, however, is the fact that in the North African Theater practically all men in rifle battalions who were not otherwise disabled ultimately became psychiatric casualties. Although only one to three percent of the combat strength was lost from this cause during any single offensive, apparently the intensity and duration of the continued campaigns surpassed the limit of endurance of the average soldier. Just as an average truck wears out after a certain number of miles, it appears that the doughboy wore out, either developing an acute incapacitating neurosis or else becoming hypersensitive to shell fire, so overly cautious and jittery that he was ineffective and demoralizing to the newer men. The average point at which this occurred appears to have been in the region of 200 to 240 regimental combat days. The number of men still on duty with this amount of combat experience is small and their value to their units is negligible. Individuals developing psychiatric disorders after less than 200 combat days are frequently returned to full combat duty. The worn out soldier, on the other hand, is through. At least six months would be required to make him effective again for combat, although he still may be very useful in a noncombat assignment.

The effective combat life of the average infantryman appears to depend largely upon how continuously he is used in combat. The British, for example, estimate that their riflemen in Italy will last about 400 regimental combat days, about twice as long as U. S. riflemen in the heavily used U. S. divisions in Italy. They attribute this difference to their policy of pulling infantrymen out of the line at the end of 12 days or less for a rest of four days. The American soldier in Italy, on the other hand, was usually kept in the line without relief for 20 to 30 days, frequently for 30 to 40, and occasionally for 80 days. Although tactical requirements may have required this policy, the fact that a man wears out in combat has apparently been insufficiently recognized by command.

MEANS OF REDUCING MANPOWER LOSSINCENTIVE

It is believed that infantrymen would be much more effective and would last longer in combat if they were provided with more incentive to do so. It is rudimentary knowledge that behavior is determined by motivation, but it is a fact which appears not to have been applied to the infantryman. Under present policy no man is removed from combat duty until he has become worthless. The infantryman considers this a bitter injustice. He feels that he is expected to do ten, or even 100 times as much to win the war as anyone else, but he can look forward only to death, mutilation, or psychiatric breakdown. He feels that no one at home has the slightest conception of the danger his job entails or of the courage and guts required to do one hour of it. He feels that the command does not distinguish between him and the base area soldier, and is actually less concerned for his welfare. Base area troops occupy safe jobs and live in comfortable barracks, but they receive practically the same pay, rank, promotions, and priority on furloughs to the states, and they receive a great deal more in the way of passes, entertainment, recreation, chocolate bars, cigarette-lighters, and so on.

It would be convenient if the soldier were more concerned with winning the war. However, the command has failed to make the broader issues of the war meaningful for him. In itself, winning the war is unimportant to the American soldier. The realization has never dawned on him that there might be danger to him or to his family if he did not continue fighting. Winning the war is important only as the time when he can be relieved from combat, but that time to him is in some vague and distant future, too remote to have any real meaning. The Russians are fighting to avenge the death of their loved ones and to drive the enemy from their soil; the British fight for survival; and the French are fighting their way back to France. The doughboy fights because he has to. He fights for his buddies and because his self-respect will not let him quit. For a period this is a very strong incentive, but the time comes when it loses its effectiveness. After a man has been in combat for several months, and has fought well through several campaigns, he has proved to himself and others that he is neither a weakling nor a quitter. How he behaves after this point cannot disprove this. Moreover, after several months of combat he looks around to find that most of his buddies are gone. He is one of the "old" men. For whom can he fight now? What incentive has he to go on?

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## DISEASE AND INJURY

PREVENTION OF LOSS OF MANPOWER FROM PSYCHIATRIC DISORDERS (Continued)

The doughboy is willing to do what he considers "his share", but after that he sees no reason to keep on. All he wants is to get out of combat duty. If he deliberately shirks his duty or runs away, of course he will be court-martialed. But if he becomes unable to fight further, then he gets out of combat on an honorable status. Thus a wound or injury is regarded, not as a misfortune, but a blessing. As one litter bearer put it, "Something funny about the men you bring back wounded, they're always happy... they're sure glad to be getting out of there." Under these circumstances it is easy for a man to become sincerely convinced that he is sick or unable to go on. This in turn leads to the premature development of genuine psychiatric disability and to needless loss of manpower. It also leads to self-inflicted wounds and to misbehavior before the enemy.

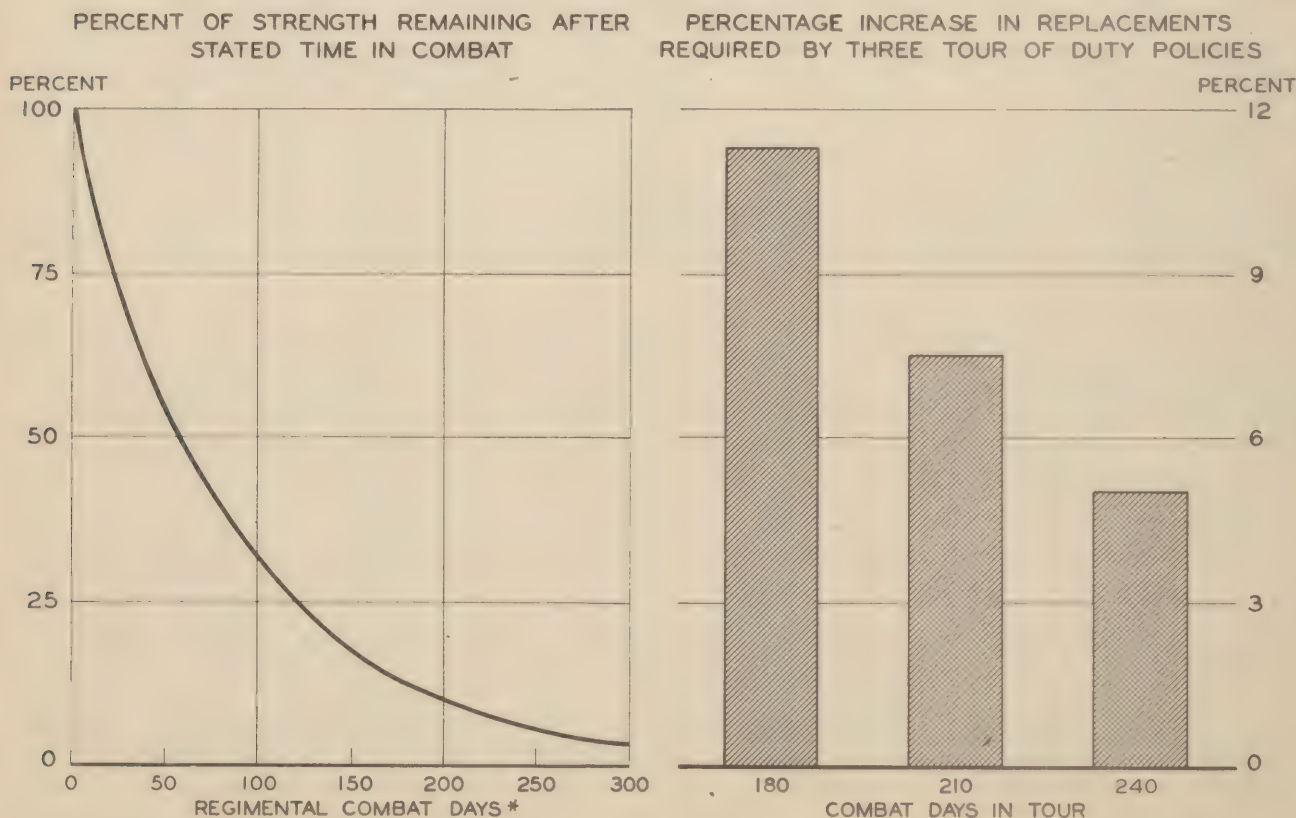
There are specific measures which would provide incentive to the infantryman to keep fighting and which would thus decrease his tendency to become a psychiatric casualty.

Tour of Combat Duty Policy

The first is the one most strongly and desperately pleaded for by all combat men, namely "a break". To be effective a goal must constitute something a man wants, and what a combat man wants above everything else except his self-respect is to get out of combat. Thus the most effective goal which can be supplied is the promise of an honorable release from combat duty at a definite time. The chief argument offered against such a policy is the claim that it would entail too great a loss of effective manpower. This argument can be met, however, by relieving individuals rather than entire units, and also by the fact that after 200 to 240 regimental combat days the military value of the average man is negligible. He will soon break in any event. In rifle battalions in Italy the rate of attrition from all causes, with allowance for return to duty, is such that only about 7 percent of the men ever attain 210 aggregate combat days.

The left-hand panel of the chart below gives an approximate picture of the proportion of original rifle battalion strength remaining on duty any number of regimental combat days after the battalion first entered combat, the data being based upon a recent statistical study of battle and nonbattle casualties made in the headquarters of the Fifth Army. On any day the number of men who have as individuals experienced that many combat days is slightly

### BATTLE AND NONBATTLE ATTRITION OF RIFLE BATTALIONS IN THE FIFTH ARMY AND APPROXIMATE COST OF TOUR OF DUTY POLICY





## DISEASE AND INJURY

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PREVENTION OF LOSS OF MANPOWER FROM PSYCHIATRIC DISORDERS (Continued)

smaller, some men having lost time in hospital. Experience factors have been applied to allow for return to combat duty on the part of both sick and wounded personnel and for non-battle attrition when the unit was not in combat. The right-hand panel, which is based upon the same observations, provides estimates of the additional cost of various policies under which men would be relieved of combat duty after having as individuals experienced the stated number of regimental combat days. A tour of 240 days would increase replacement costs by only 5 percent. Although policies can be set so as to minimize the added cost, and so as to reflect the experience of the particular theater, it is important that the goal not be too remote to affect incentive. These estimates represent a stable condition and do not reflect the immediate costs of instituting such a policy, which would be somewhat higher. However, in North Africa, the theater to which the computations apply, the rifle battalions in only about four out of eight infantry divisions would be eligible under a policy of 240 regimental combat days. Since the other battalions require about the same number of replacements at the present time, the initially higher cost of the policy for rifle battalions in North Africa would be more than offset and the stable value a fair estimate of the ultimate cost. All combat infantry would share the benefits to morale. In other theaters where combat has been less prolonged, even fewer would be immediately eligible. Approximate computations suggest that the initial cost of instituting a 210 day policy would be in the neighborhood of 2,500 men for the entire North African Theater. The justification for restricting the policy to infantry battalions is that no other unit suffers comparable attrition rates. Complaints which might arise from other personnel could be amply met by offering them the option of transfer to the combat infantry. Morning reports and service records already provide the information required to make the policy administratively possible.

Rewards for Achievement

A second measure to increase incentive is to establish more appropriate rewards for achievement. The infantryman should be officially recognized as a special type of soldier with special privileges. Recognition of his importance should be reflected in the more assiduous application of priorities on supplies and equipment, the provision of coveted articles now available primarily for base area troops, and, when on leave, unrestricted access to all recreation and entertainment enjoyed by base area troops. It is recognized that there are the competing claims of paratroopers, airborne infantry, tank-men, members of demolition units, etc., but the infantryman is at present the least appropriately rewarded specialist in the Army.

Tactical Orientation

A third approach to the problem places greater emphasis upon what may be designated as tactical orientation. Incentive for taking an objective can be markedly increased by knowledge of the tactical situation with particular attention to the reason why the objective must be taken. Briefing of infantry troops is currently practiced according to the interest of the individual commander. It is believed that a definite War Department policy to this effect would be of great value.

Strategic Orientation

A fourth approach attempts to make the goal of winning the war a more meaningful one to the combat soldier. This might be designated as strategic orientation and logically combined with the tactical briefing. There is little doubt that lack of conviction as to the necessity for fighting is playing a major role in the performance of combat troops. It is believed that a great improvement could be made in this direction. Granted that the most important time to present data on why we fight is during training back in the states, and that at first glance it might appear ridiculous to tell veterans of two and one-half years what they are fighting for, nevertheless, men in combat need desperately to be reminded of what they are fighting for. They need to be reassured constantly that what they are doing is worth while and appreciated.

The data on why we fight which would most make sense to the combat infantryman is the evidence that the enemy intended to subjugate the U. S., that he very nearly acquired the power to realize this ambition, and that he will again threaten the U. S. if not now driven to the ground. The soldier in Europe has seen occupied and war-torn countries. If he could

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## DISEASE AND INJURY

### PREVENTION OF LOSS OF MANPOWER FROM PSYCHIATRIC DISORDERS (Continued)

be made to understand the threat to himself and his family he could believe that, were he not fighting abroad, he would be defending U. S. soil. The evidence of the intent and ability of the enemy to harm the U. S. may not have been compiled in readily available form, for no more than a small portion of it has ever been presented to U. S. military personnel. Many officers, particularly higher commanders, have not regarded themselves responsible for the attitudes and beliefs of personnel under their command. Their concept of leadership has not extended to the realm of ideas and beliefs. Many have realized that indifference toward the issues of the war, resentment over strikes in the states, and lack of tactical briefing, were all causing morale problems in their commands, but few have realized that they should or could act to counteract these attitudes. Few of them exhibit any knowledge of the orientation program, news services, informational material, or other facilities available to assist them in this problem.

### LEAKS IN EVACUATION SCREENING

There is a widespread tendency for unit commanders to abuse medical channels of evacuation by attempting to use them as a means of getting rid of men who are noneffective through inadequate leadership rather than sickness. Medical evacuation is an honorable means of getting out of combat. If an inexperienced battalion surgeon or an overly sympathetic psychiatrist permits goldbricks, cowards, and poorly motivated soldiers to escape through this channel, the morale of the entire unit is undermined and genuine psychiatric disorders develop.

The issues involved are very confused in the minds of many line officers, battalion surgeons, and psychiatrists alike. The terms "coward", "psychoneurosis", and "goldbrick" are used very loosely and mean different things to different people. The medico-legal aspect of the problem further complicates the picture. It is currently stated in Italy that there is no longer any such thing as cowardice in the U. S. Army, for any man who runs away from the enemy falls into the hands of a psychiatrist before he can be court-martialed and is thereupon declared not responsible for his acts on the grounds of psychoneurosis. Many line officers are very bitter about this and accuse psychiatrists of undermining the discipline of combat forces. On the other hand, the same line officers are naturally very disturbed at the possibility of punishing a man who was truly out of his head at the time of the offense. Also these same line officers often are the worst offenders in attempting to abuse medical channels in order to get rid of disciplinary noneffectives. It is believed that there is an urgent need to clarify the categories and channels of evacuation in the minds of both line officers and medical officers.

### GROUP REPLACEMENTS

The strongest force which keeps a man going in combat is his self-respect and pride. Its strength depends upon the bond between himself and his fellow soldiers. In this regard there is a marked disadvantage in going overseas and into combat as an individual. It is believed that combat infantry replacements would be more effective if they were requisitioned and assigned in small units of three to nine men who had been trained and kept together from the start of basic training.

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# DISEASE AND INJURY

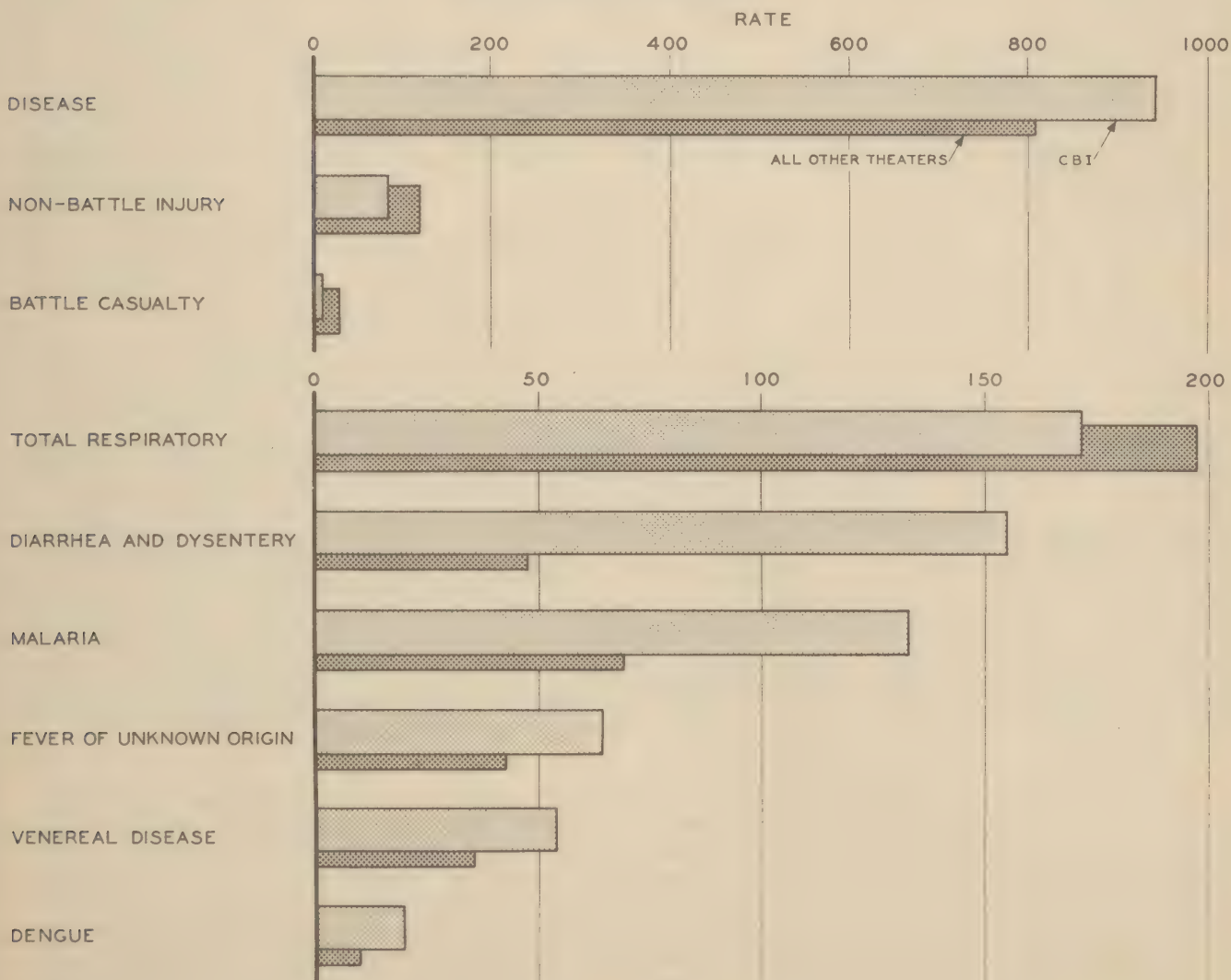
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## HEALTH PROBLEMS IN THE ASIATIC THEATER

As emphasis is diverted to prosecution of the Pacific war, the China-Burma-India area becomes of increasing strategic importance. Because of adverse climatic conditions and the low standard of living of the civilian population, the problems of preventive medicine in this theater are probably greater than anywhere else in the world. The intense heat and high humidity over long periods of time have a noticeable effect on the physical and mental efficiency of personnel. Four to six weeks are necessary for the acclimatization of new troops. Fully 75 percent of all U. S. armed forces in CBI are employed in service and air ground force activities. The inevitable boredom resulting from prosaic duties in an unchanging environment gives rise to difficulties in maintaining personal sanitary discipline which are a challenge to the most vigilant commanding officer. Prickly heat and skin diseases are both prevalent and troublesome during the hot season. Although the monsoon rains are welcomed as a relief from the great heat, they bring disease and pestilence on the wings of mosquitoes, flies, and other insects. U. S. Army strength in this theater has increased nine-fold since the first of 1943 until on 31 July American troops on duty there numbered about 170,000. The load of the Medical Department is augmented even further with assumption by the U. S. Army of the responsibility for the medical care of approximately 80,000 Chinese troops operating in this area.

The standard of living in eastern Asia is notably low. Except for certain of the larger coastal cities, sanitation and sewerage are practically non-existent. The absence of facilities for disposal of waste provides optimum conditions for the breeding of flies. Gastro-intestinal diseases are rampant, because contamination of food is common through ignorance of sanitary methods of food-handling. In the rural lowland areas, native bashas are

ADMISSIONS PER 1,000 STRENGTH PER YEAR, SELECTED CAUSES  
YEAR ENDING 31 MAY 1944



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HEALTH PROBLEMS IN THE ASIATIC THEATER (Continued)

excellent haunts for mosquitoes and other disease-bearing insects. Although the regions of higher altitude are not troubled with mosquitoes, the natives of these infertile regions are victims of malnutrition and often contract malaria on visits to the valleys in search of food. In the large towns and along the railroads and rivers there are public health programs which effectively meet health emergencies. However, the lack of transportation facilities in the large rural areas hinders epidemiological investigation and control, and the diversity of language makes difficult the dissemination of educational material.

The gastro-intestinal diseases in CBI present the greatest challenge to the resources of medical personnel and, more particularly, of the command. Diarrhea and dysentery occur so frequently that the troops have unfortunately come to accept them as a matter of course. The difficulties of insuring adequate protection of water and food supply have been viewed as almost insurmountable. Since most of the streams are heavily contaminated with raw sewage, all water must be considered unfit for human consumption until treated. In many areas the constant threat of amoebiasis renders chlorination alone insufficient. The paucity of filtration units, especially in China, necessitates boiling all water prior to consumption. Although boiling of water has been scrupulously adhered to the finished product is often contaminated again by native handling prior to consumption. Lack of appreciation for American standards of hygiene and food quality provides a serious obstacle to the local procurement of fresh meat and dairy products. The markets and bazaars of the large cities swarm with flies and other insects, and fresh fruits and vegetables sold under these insanitary conditions are potential sources of infection.

The accompanying chart compares the incidence of certain causes of admission in the Asiatic Theater and in all other overseas commands during the year ending 31 May. The diarrheal diseases, malaria, undiagnosed fevers, venereal disease, dengue fever, and scrub typhus have all presented relatively serious health problems to U. S. troops in this theater. The trend of admissions and noneffectives for diarrheal disease is shown in detail on page 21 of this issue. The nature and magnitude of this problem are such that only exceptionally forthright and far-reaching command action can be effective. Successful control of sanitation in regard to food and water requires:

1. removal of native food-handlers from contact with Army food in the final stages of preparation;
2. rigorous individual sanitary discipline; and
3. the provision of much larger numbers of veterinary personnel for purposes of food inspection.

The wide dispersal of casual personnel and elements of various units often makes unit messing arrangements difficult to accomplish. The lack of adequate mess personnel in such instances has resulted in the creation of contract messes or American supervised kitchens with entirely native personnel. Officers frequently assume mess supervision in addition to their primary duties. The use of improperly supervised native labor for mess activities is an invitation to the spread of disease. The opinion seems to be prevalent in the theater that the American soldier should not help feed himself and keep his camp clean. Until it can be demonstrated that native labor can be safely supervised, it seems essential to recommend that only U.S. Army personnel be used in the final preparation of food and in its subsequent handling prior to consumption. Soldiers newly arrived in the theater are indoctrinated with the necessity for avoiding the foods and drinks sold by innumerable vendors in large cities, but many admissions for diarrheal disease among newly arrived men may be traced to such sources. Company officers state that men who are ordinarily well-trained in water discipline will, after a number of hours in combat, drink water from virtually any source. It is thought that much amoebic dysentery is contracted in this fashion.

In the Asiatic Theater the inspection of all subsistence, not merely meat and dairy products, is a responsibility of the veterinary personnel until it is delivered to the mess. However, the theater lacks the personnel with which to meet this need and food inspection is not being performed as it should. Food inspection is said to constitute only 15 percent of the veterinary activity in the theater, the greater part being devoted to animal care. Less than half of the beef cattle are slaughtered under the direct supervision of Army veterinary personnel. The sources of milk supply in India are quite inferior and local contractors have been unable to meet Army standards. It has been recommended that the issue of dairy products be restricted to canned and powdered milk products. With adequate veterinary personnel for inspection it might be possible to procure more food locally.



## DISEASE AND INJURY

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### HEALTH PROBLEMS IN THE ASIATIC THEATER (Continued)

The Asiatic Theater is highly malarious except in the large cities and in mountain regions of more than 4,000 feet elevation. All three forms of malaria occur, the highest incidence being before and after the rainy seasons. Greatest prevalence is in Assam Province and in Northern Burma. Among U. S. Army troops the admission rate reached its peak in August 1943 with an annual rate of 322 per thousand. Control measures have effected some reduction but the rate for July 1944 was 250 per thousand men per year, greater than in any other theater. The fact that atabrine was not employed in CBI until April 1944, and then only in combat elements in Northern Burma, may account for the high rates. Prior to this time, malaria, though prevalent, had not impaired the efficiency of any one organization to such an extent that atabrine for all troops was considered to be indicated. Now that units are seeded and the rate of recurrence is high, atabrine is supplied to all organizations in Northeast Assam and Burma.

The Chinese in CBI have manifested a greater susceptibility to malaria and their cases are usually more severe. Among the Chinese infection has been complicated by the co-existence of malnutrition, the almost universal infestation with intestinal parasites, anemia other than that caused by malaria alone, and many other medical and surgical conditions, some of which have been serious or fatal in themselves. Malaria remains an outstanding problem in uncontrolled areas along the road, pipeline and railroad. Controlled areas have been established to extend half a mile beyond the perimeter of camps and in numerous instances this has been successful in reducing the mosquito population within the area to a negligible concentration. Personnel in such an environment soon lose sight of the necessity for rigid precautions and often acquire infection during visits to uncontrolled areas. The pressure of population is so great that it is often impossible to locate camps sufficiently far from native huts to prevent cross-infection. In China the ubiquitous rice fields afford ready breeding grounds for a malaria vector which cannot well be eradicated without disruption of the civilian economy. Fortunately the vector is not a very potent one.

Scrub typhus has become a serious problem in the Northern Burma campaign where its increasing prevalence and severity have made this disease militarily important (see page 18, this issue). There is a large reservoir of venereal infection in the civilian population throughout the Asiatic Theater. Negro troops, who find no color barrier in India, have been particularly susceptible to these diseases. Chancroid is unusually prevalent and represents about 40 percent of the incidence. Because of the wide diurnal range of temperatures in many regions and the inadequacy of housing facilities for troops, who in some cases occupy native bashes, the incidence of respiratory infection is greater than would be expected in a generally tropical climate.

Dengue fever is widely endemic in the theater, particularly in the Calcutta area. The current rates appear to be heading toward the usual seasonal peak, but with superior mosquito control measures and widespread immunity among troops it is likely that the incidence will be much lower this year than last. Cholera is endemic in the civilian population and reaches epidemic proportions yearly. Although no cases have occurred among U. S. troops the potential military importance of the disease must be borne in mind. The traditional foci of infection are in Yunnan and Kwangsi provinces in China and in Bengal Province in India, where the incidence last November was the highest in four years. Plague sporadically breaks out in the civilian population. A mild outbreak in the native population in Southern Deccan in April caused some concern among an air depot group in the vicinity because of the fact that a number of coolies employed at the depot lived in the infected areas. Smallpox is epidemic in the chief ports of the theater, is endemic throughout the theater, and reaches epidemic proportions in many scattered localities from time to time. During the first quarter of 1943 there were 23 cases of smallpox with five deaths among military personnel. Investigation revealed that vaccination procedures had been at fault so that a number of troops arrived in the theater without immunity to smallpox. Corrective action was immediately taken.

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## DISEASE AND INJURY

### SCRUB TYPHUS

Recent military advances in both the Asiatic and Southwest Pacific theaters have underscored the increasing military significance of scrub typhus. Although it has been shown that troops entering new combat areas in the Southwest Pacific and northern Burma are likely to encounter the disease, until the recent very extensive flare-up at Owi and Biak there has been insufficient command appreciation of the severity of the hazard. Scrub typhus will probably become an increasingly severe military problem, for all prospective operational areas in the Pacific and Asia must be considered potentially infected with scrub typhus. The issue of suitably impregnated clothing is now directed for combat troops entering new areas in the Southwest Pacific. The disease is important not only because it may exact a relatively heavy and unpredictable toll among troops in actual combat but also because of its acute character, the usually long period of hospitalization required, and a case fatality rate high enough to create a problem of morale. No method of immunizing against infection has yet been developed.

Under the auspices of the Army Epidemiological Board and the U.S.A. Typhus Commission a research team, sent to the Southwest Pacific in 1943, made considerable progress in the direction of determining the manner in which the disease is contracted and how it may be controlled (see HEALTH for 31 December 1943). Investigations in New Guinea incriminated the tall kunai grass fields as probably harboring the small mite known to transmit the disease, for virtually all infections could be traced to foci of this character. More recently, however, infection has occurred in other types of terrain not initially suspected of harboring mites and it is now realized that the areas of potential danger are much more widespread than had at first been suspected. This development places greater emphasis upon such individual control measures as the use of clothing impregnated with repellents, although airplane spraying of DDT may have some promise. Individual measures require vigorous command support to be effective.

Troops in the Asiatic Theater experienced a brief outbreak of scrub typhus in Assam during December 1943 and with the penetration of northern Burma by Chinese troops and by the 5307th Composite Unit there occurred even larger numbers of cases. Considered in relation to the strength of the attacking forces, the incidence assumed military significance. Epidemiological studies, corroborating the findings in New Guinea, showed that certain restricted areas served as the foci of the disease in the Mogaung, Tanai, and upper Irrawaddy valleys as well as in the vicinity of Myitkyina. The evidence suggests contraction of the disease while sleeping or recumbent on low ground covered with grass and sparse jungle or scrub in river valleys. The identification of Myitkyina as a focus of infection naturally suggests that there may be foci throughout the paddy land of the Irrawaddy Valley. There is evidence that the Japanese garrison at Myitkyina suffered an epidemic in October 1943 and a suggestion that Japanese medical officers in the area failed to recognize the identity of the disease, although it is known in Japan. The British reported a sharp outbreak during maneuvers in Ceylon in December 1943 and January 1944.

The recent Asiatic experience also provides evidence that the severity of the disease is increased by poor physical health and malnutrition. This fact, coupled with difficulties of evacuation, may explain why the proportion of deaths has been as high as 9 percent among U. S. and Chinese troops in this area, whereas in New Guinea the average fatality rate has been less than 5 percent. In some groups the fatality rate has been as high as 30 percent. It is also possible that the causative organism in different localities may have strains of markedly different virulence.

Control measures in both the Asiatic and the Southwest Pacific theaters center about the use of repellents, especially as a means of impregnating clothing, the avoidance of suspicious terrain where possible, and care in the location of camp sites and the choice of sleeping-space. Early diagnosis is fostered as a life-saving measure.

In the Southwest Pacific the incidence of scrub typhus ranged between 2 and 5 admissions per 1,000 men per year until the operation against Biak, when the disease assumed considerable military importance. It now threatens to present a continuing problem to further operations in this general area. The accompanying table summarizes the rapidly rising incidence by weeks.

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# DISEASE AND INJURY

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## SCRUB TYPHUS (Continued)

WEEKLY INCIDENCE\* OF SCRUB TYPHUS, NEW GUINEA AREA, 1944

Week Ending		Cases	Week Ending		Cases
May	5	11	July	7	3
	12	33		14	55
	19	36		21	204
	26	48		28	320
June	2	36	August	4	211
	9	57		11	376
	16	27		18	669
	23	33		25	464
	30	49			

\* Provisional Telegraphic Reports

Since the first of June upwards of 2,000 cases have been reported telegraphically. Because most of the cases occurred in the forces operating against Biak and Owi, and perhaps also among those on the Vogelkop peninsula, the operational significance of the increase is appreciable. Members of the U.S.A. Typhus Commission were flown to Owi and Biak to direct control measures when the epidemic first broke out. In the beginning the epidemic was traced to widespread locations on Owi Island, but cases soon began to show up from Biak, especially among infantry regiments of the 41st Division. It is not known how many of the reported cases occurred forward of Biak, but some cases have occurred in the region of Sansapor on the Vogelkop peninsula of New Guinea.

Owi and Biak do not have the open grassy areas characteristic of foci in New Guinea, and mites were difficult to find by usual methods of collection. A dense cover of large trees and tangled undergrowth was found to provide cover and moisture for the mites. Chief emphasis was at the start necessarily placed upon methods of protecting the individual against the bite of infected mites. In view of the priority placed upon the needs for air strips, gun emplacements, and the like, the means were not plentiful for clearing immediate living areas so as to remove the cover afforded to the mites. Camp sites which have been well cleared and sanded present no real risk of infection within the camp area. Although the use of repellents was urged, greater reliance was placed upon clothing impregnated with soap emulsion of dimethyl phthalate against the mite causing scrub typhus. Such clothing was marked to facilitate enforcement of the measure by command. Since this is the chief measure which can be employed prior to the clearing of mite-harboring cover, it is essential that combat uniforms be pre-treated for issue to troops engaged in forward movement in these and similar areas.



# DISEASE AND INJURY

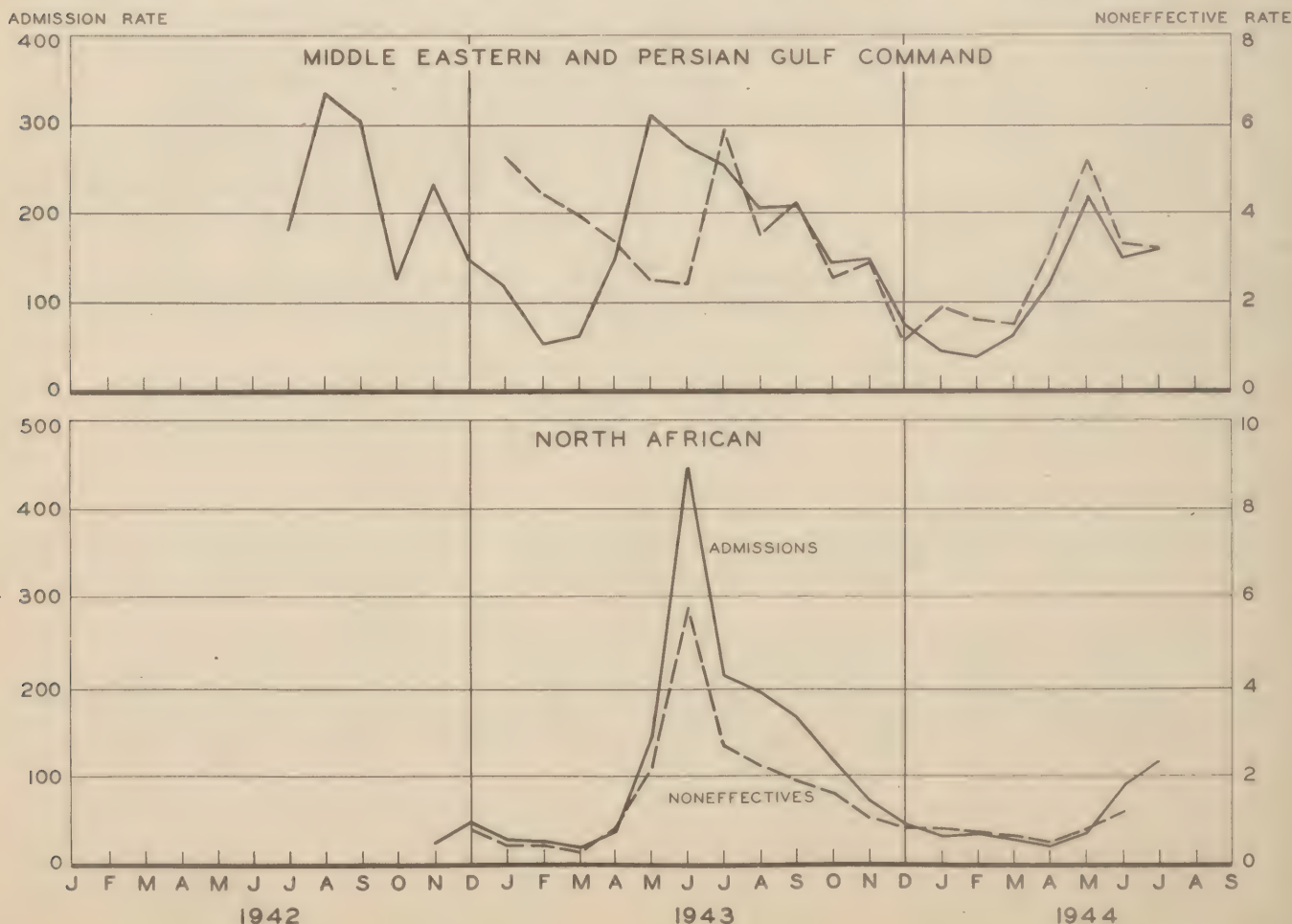
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## DIARRHEA AND DYSENTERY

With the advent of the summer or rainy season in the various overseas theaters the incidence of the diarrheal diseases (including dysentery) has again increased. The charts below and on the following page summarize the incidence of diarrhea and dysentery in the theaters where it has periodically posed a problem of some magnitude. The admission rates are shown through June or July 1944, the latest months for which reliable data are available. Also shown, as a broken line in each panel, is the noneffective rate for diarrhea and dysentery. The seasonal factor determines the gross variations in incidence in all theaters, and the pattern of noneffectiveness closely follows that of admissions since the average length of treatment is between five and eight days in all areas. Any deviations may be attributed to differences in the proportion of patients having dysentery, the period of noneffectiveness being longer for this group of disorders. The seasonal incidence of diarrhea and dysentery is almost identical with that of malaria, for the hot, rainy, humid climate, ideal for the breeding of mosquitoes also fosters the propagation of large fly populations and the spoilage of food. A large part of the incidence of diarrhea and dysentery is usually composed of a group of outbreaks in certain units of a command. It ordinarily affects a group of men in one place, and is less evenly distributed than malaria. There is no doubt that in addition to the recorded incidence there are usually a number of mild, unreported cases which also contribute to the lowering of military efficiency.

The most extreme outbreak of diarrhea and dysentery experienced by the Army over a large area occurred in North Africa during the summer of 1943 at the end of the Tunisian Campaign and in the period prior to and including the early stages of the Sicilian Campaign. The peak was reached in June with a rate of 445 admissions per thousand men per year. During this month diarrhea and dysentery accounted for 36 percent of all admissions and for 14 percent of the total noneffectiveness. The 1944 seasonal increase has been less severe in this theater, the incidence in June having been only 20 percent of that for June 1943. However, the rate increased during July to 114 and some further rise is anticipated. This has been occasioned, in part, by dislocation of sanitary facilities among the Italian civilian population.

DIARRHEA AND DYSENTERY, ADMISSIONS PER THOUSAND MEN PER YEAR, AND AVERAGE NONEFFECTIVES PER THOUSAND STRENGTH



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DISEASE AND INJURY

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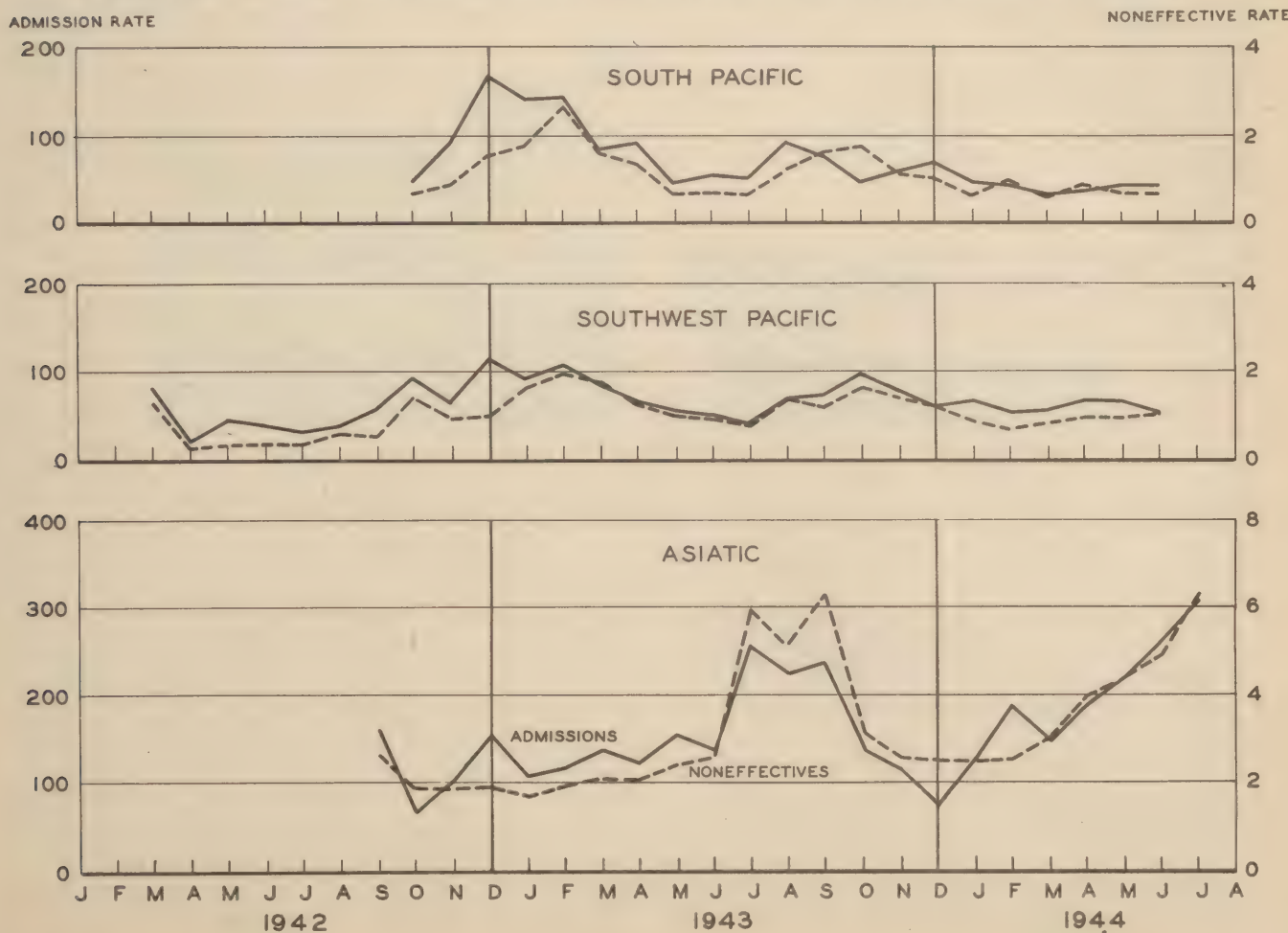
DIARRHEA AND DYSENTERY (Continued)

In the Asiatic Theater the rate began to rise in February and reached 304 per thousand men per year in July, 19 percent higher than the rate for July 1943. Officers of combat units have reported that even well trained men will drink water from any source after a few hours of combat. In addition it has been difficult to prevent men from buying ice cream and cold drinks from unauthorized and questionable sources while they are on leave or at railroad stations during long train rides after debarkation in the theater. These are command problems. The generally decreasing level of incidence in the South and Southwest Pacific may be related to the malaria control program. Many anti-mosquito measures are also effective against flies, and these areas are now well sanitized in comparison with 1942 and 1943. The following table compares the average diarrhea and dysentery rates with those for all disease during 1943:

Theater	Average for 1943					
	Admissions			Noneffectives		
	Total Disease	Diarrhea and Dysentery		Total Disease	Diarrhea and Dysentery	
		Rate	Percent of Total		Rate	Percent of Total
Total Overseas	891	66	7.4	31.2	1.08	3.5
Middle Eastern*	1,105	170	15.4	39.7	2.81	7.1
North African	946	132	14.0	31.6	1.86	6.0
South Pacific	1,623	75	4.6	56.4	1.32	2.3
Southwest Pacific	1,042	70	6.7	42.7	1.30	3.0
Asiatic	991	146	14.7	35.1	3.28	9.3

\* Including Persian Gulf Command.

DIARRHEA AND DYSENTERY, ADMISSIONS PER THOUSAND MEN PER YEAR, AND AVERAGE NONEFFECTIVES PER THOUSAND STRENGTH



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# DISEASE AND INJURY

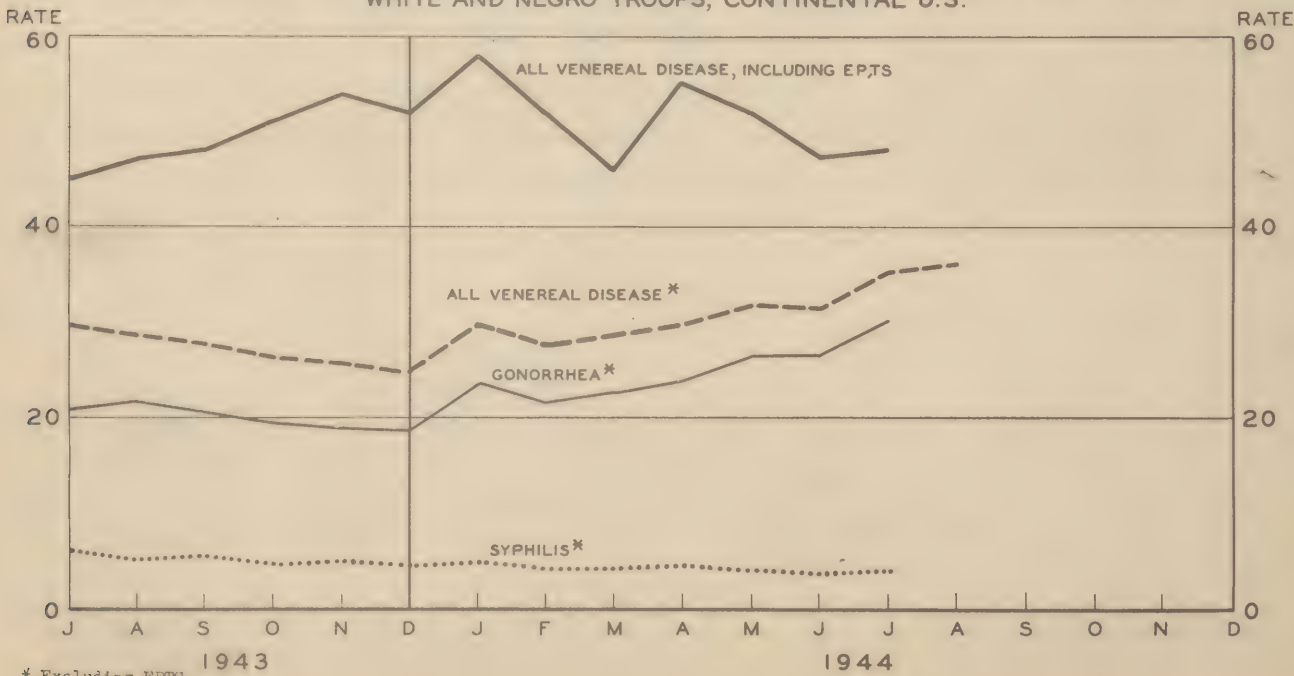
## VENEREAL DISEASE, CONTINENTAL U.S.

Since the beginning of 1944 the U.S. venereal disease rate (excluding infections prior to service) has increased rather steadily to the point where the July rate of 35.2 admissions per 1,000 men per year represents the highest incidence since 1942. The provisional rate for August is even higher. Comparison of July data by service commands with the average rates for the first quarter of 1944 reveals that the increase has been general throughout all service commands, the Military District of Washington being the only exception with a decline of 13 percent. The greatest relative increases occurred among troops in the First and Ninth service commands, where the rates advanced 68 and 44 percent respectively. There is considerable overseas movement from these service commands. However, the July rates for the Third and Fifth service commands also reveal a greater than average increase over their respective rates for the first quarter, the average increase for the entire U.S. being 23 percent. For the most part the increase results from higher admission rates for gonorrhea on the part of Negro troops, but there has been a less spectacular rise in the gonorrhea rates among white troops. Syphilis, on the other hand, has been declining, as may be seen from the accompanying charts. A similar combination of trends occurred in the civilian population during 1943, but the 1944 civilian rates are generally upward for both principal venereal diseases.

The general rise in the civilian incidence of venereal infection is insufficient to explain the much greater increase in the Army rate, nor is it entirely clear what other factors are operating, and to what degree. There are, however, several possible explanations for some portion of the increase: 1. The movement of troops from widely scattered to more concentrated locations and their movement through staging areas probably provides a greater chance of exposure in regions where civilian infection is prevalent. 2. The publicity accorded the wonder cures for syphilis and gonorrhea may well serve to diminish fear of infection and thus increase exposure or decrease resort to prophylactic methods. 3. The publicity accorded the recent remarkable therapeutic advances, especially the use of penicillin, may operate to encourage to report for treatment the undetermined number of infected men who previously sought treatment outside the Army. 4. The venereal rate, like the AWOL rate, is an index of the morale of troops, and it is known that the AWOL rate has been increasing in recent months.

Two entirely different considerations operate to reduce the military significance of the apparent increase in infection. The venereal load among inductees is falling with the declining rate of induction and the average number of days lost per case is also diminishing. Both these trends tend to diminish the noneffective rate from venereal disease in the U.S. In fact, the former has the effect of causing some reduction in the total venereal rate including EPTS cases, for the EPTS component has been a major factor in the gross rate. The decline in EPTS cases may reflect more than the falling induction rate, for the incidence of EPTS cases among newly inducted personnel is lower than average for June and July.

VENEREAL DISEASE, ADMISSIONS PER THOUSAND MEN PER YEAR  
WHITE AND NEGRO TROOPS, CONTINENTAL U.S.





DISEASE AND INJURY

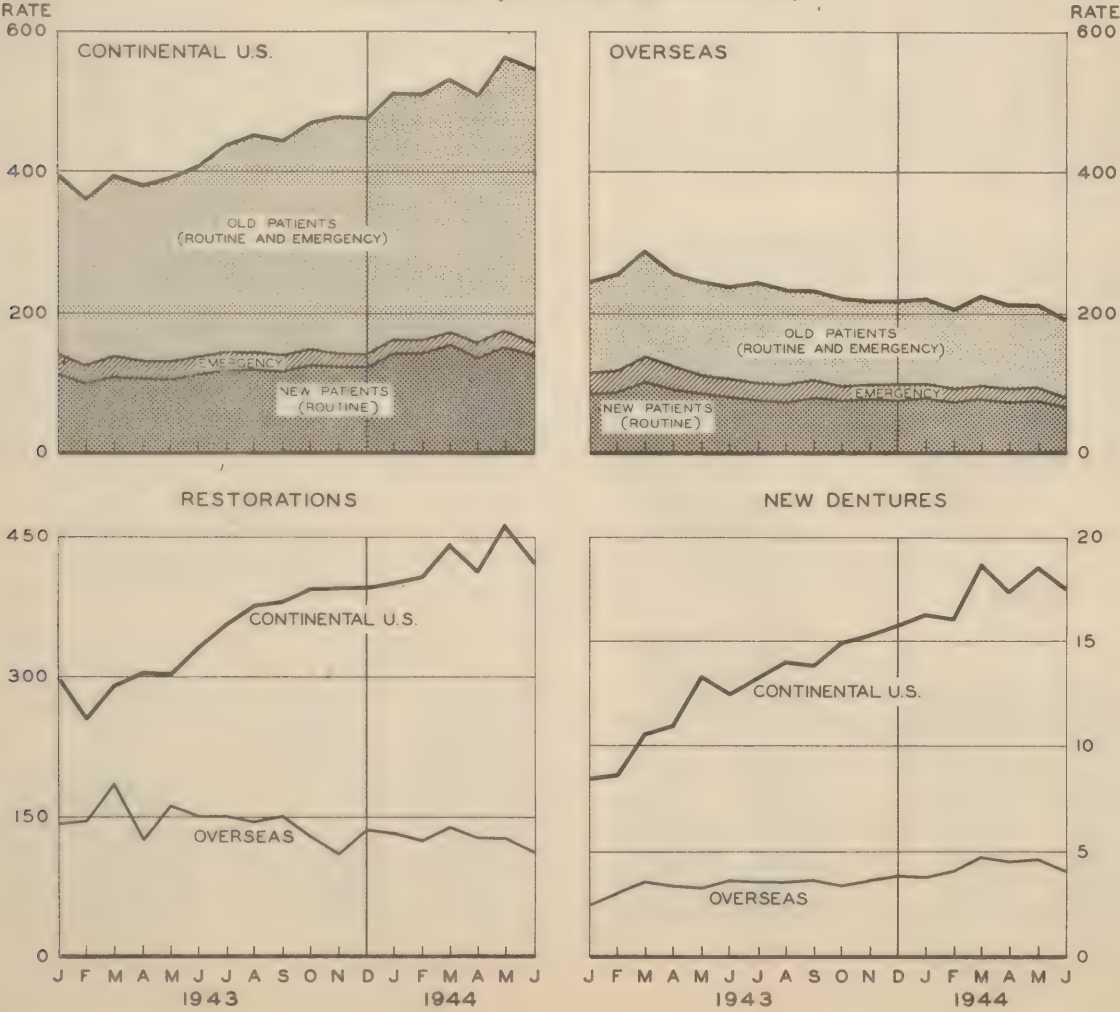
DENTAL ADMISSIONS AND TREATMENTS

During May, dental attendance in the Continental U. S. (including old and new patients) reached 563 per thousand men per month, 41 percent higher than the rate for January 1943. The June rate of 547 represents a slight decline. The steady increase in dental attendance over 18 months shown in the charts below, is attributed to the increased availability of supplies, equipment, dental officers, and technicians. Overseas, on the other hand, attendance during June was at the lowest level since January 1943. The rate of 192 per thousand men per month was 21 percent lower than that for January 1943. The difference in the level of attendance overseas results primarily from the policy of accomplishing all possible dental work in this country prior to movement overseas. The rate for emergency admissions (new patients) has remained relatively constant both in the Continental U. S. and overseas. The first charts below compare dental attendance overseas and in the U. S. and show the proportions of all patients who were admitted for routine and emergency care.

The number of restorations (fillings) in the Continental U. S. has increased steadily since January 1942, when the rate was only 174 per 1,000 men per month. The restoration rate rose to 294 in January 1943, 393 in December 1943, and to a peak of 462 in May 1944, decreasing in June to 424 per thousand men per month. An appreciable number of restorations have also been completed overseas although the restoration rate has declined slightly since the beginning of 1943.

There has been a great demand for dentures in the Army because of induction policy. In the U. S. this need, as measured by the number of new dentures constructed per 1,000 strength per month rose from a low point of 2.1 in January 1942 to a high of 18.6 in March of 1944. The overseas denture rate also increased from 1.5 in January 1942 to 4.7 per thousand men in March, although it had declined somewhat to 4.1 by the end of June. The backlog of soldiers requiring dentures has been reduced markedly and the men are now receiving a more complete service than could be rendered before. Some borderline cases previously unable to have prosthetic appliances are now receiving them.

DENTAL ATTENDANCE, ADMISSIONS, AND TREATMENT PER 1000 MEN PER MONTH  
ATTENDANCE (OLD AND NEW PATIENTS)





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## HOSPITALIZATION

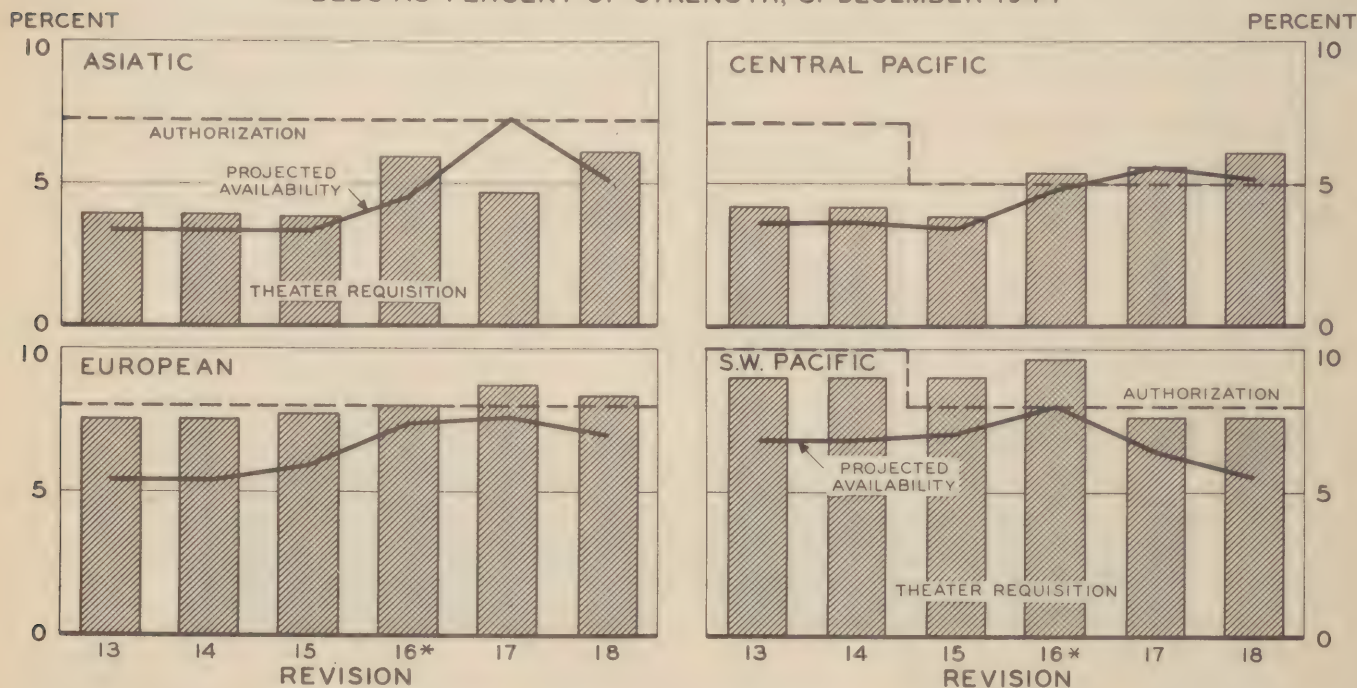
### PROVISION OF FIXED HOSPITALIZATION OVERSEAS

Although considerable progress had been made in the direction of meeting theater requirements for fixed bed units on 31 December 1944, some of the gains evident in the 17th revision of the WD Six Months Troop Forecast were wiped out by the increases in strength forecast by the 18th revision. However, by March 1945 it is forecast that all theater requisitions for fixed beds, as reflected in the 18th revision, will have been met. The first chart below gives the December points of each successive revision of the WD Six Months Troop Forecast for the expanding theaters. For example, under the 13th revision, it was estimated that fixed bed units equivalent to 5.4 percent of strength could be put into the European Theater by 31 December, the request of the theater being 7.5 percent for that date and the WD/GS authorization being 8.0 percent. For the 18th revision the projected availability for the European Theater on 31 December was 7.0 percent. The schedule of availability shown below assumes that units are shipped only at the completion of their training. Some units have been shipped prior to the completion of their training at theater request. Despite the fact that units cannot always be shipped on the required dates, sufficient personnel is now in preactivation training in the Medical Department Training Centers to activate all the ASF medical units reflected in the 18th revision of the forecast so as to meet theater requisitions through March 1945. The 18th revision data for March are shown in the bottom chart.

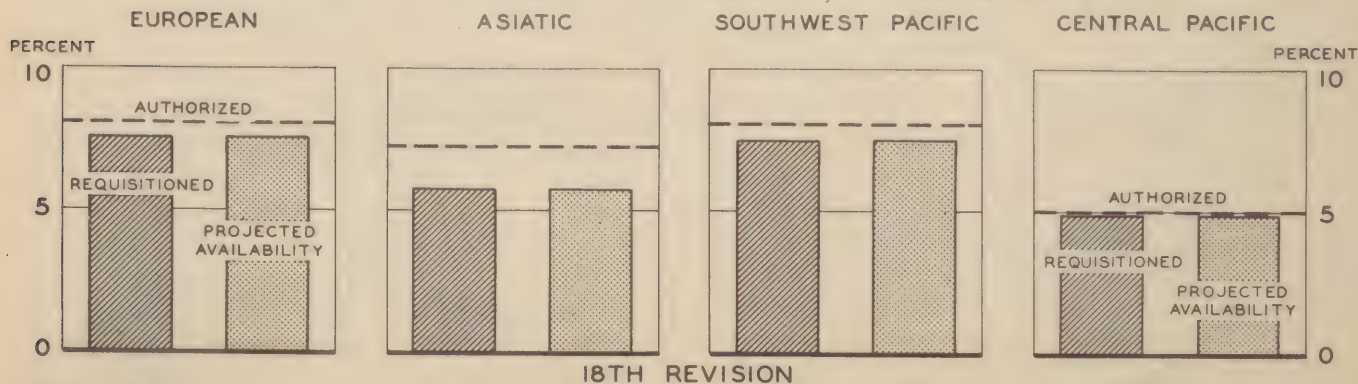
It has recently been possible to declare available sufficient enlisted personnel to plan a small strategic reserve in medical support of the undeployed reserve in the WD deployment of the Troop Basis dated 1 July 1944. This consists of seven general hospitals, four field hospitals, two malaria survey units, and ten malaria control units.

### PROJECTED AVAILABILITY OF FIXED HOSPITAL UNITS OVERSEAS

#### BEDS AS PERCENT OF STRENGTH, 31 DECEMBER 1944



#### BEDS AS PERCENT OF STRENGTH, 31 MARCH 1944



\* 31 January 1945.

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# HOSPITALIZATION

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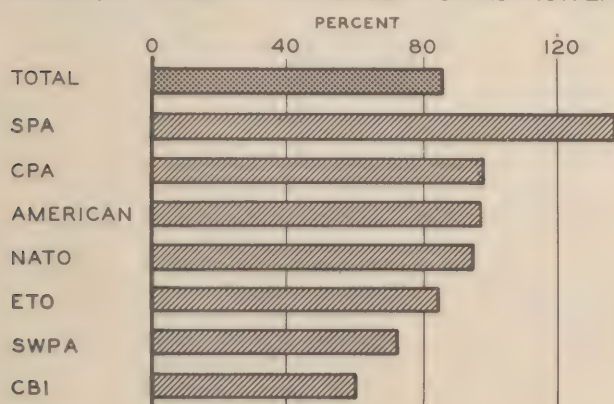
## STATUS OF HOSPITALIZATION OVERSEAS

The first panel of the chart below compares the current War Department authorization for fixed bed units with the T/O capacity of fixed hospitals reported to be in the various theaters at the end of July. The War Department authorization for fixed hospital beds in the Asiatic Theater includes 4,560 beds (8 percent of the ceiling strength of 57,000) for the Chinese Army in India. However, at the end of July the reported strength of the Chinese Army in India was 83,000. Reorganization of the South Pacific as a base command of the Pacific Ocean Area left this command with a considerable but temporary excess of fixed beds over and above the authorized level of 6 percent. Sufficient units are under movement orders from this command to the Central Pacific and to the Asiatic Theater to reduce its fixed hospitalization to 5.7 percent of strength within 60 days. Similarly, the chief shortages, those for the Southwest Pacific and the Asiatic theaters, are being reduced below those existing on 31 July. Enough units are under orders for movement to the Asiatic Theater during September and October to provide that theater with approximately 82 percent of the fixed beds authorized for 31 October. Equally important is the recent approval by the War Department of a plan for reorganizing fixed hospitals in the Southwest Pacific, which will provide 6,250 additional T/O fixed beds and effect a considerable saving in medical personnel, especially Medical Corps officers (the saving being approximately 1 percent of the Medical Corps strength of the Army). Implementation of the reorganization will provide the theater with 82 percent of the capacity authorized for 31 October.

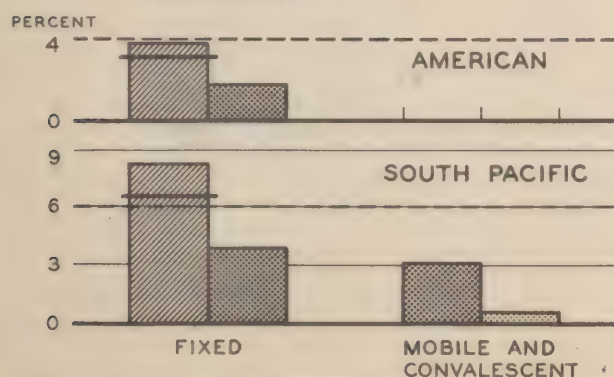
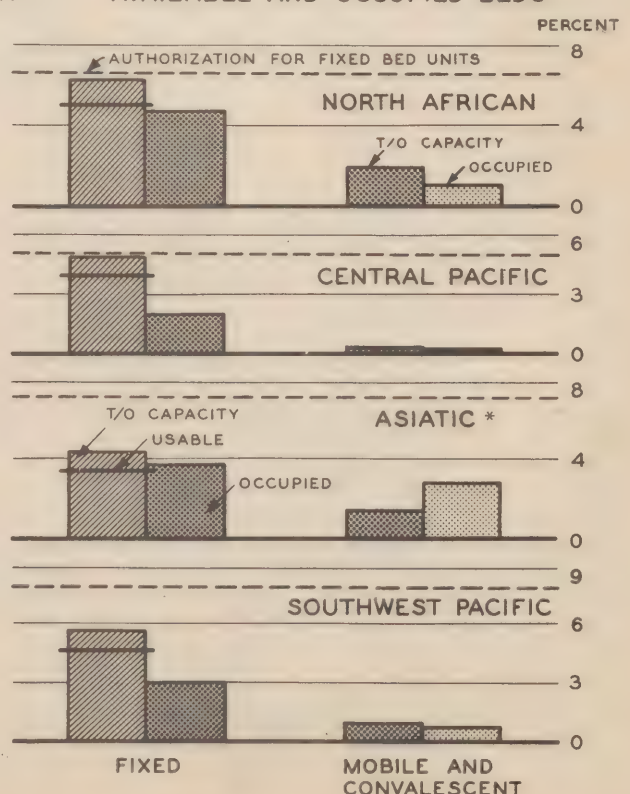
The lower panels summarize the hospital situation in each of the major theaters at the end of July. Data on bed occupancy are based upon telegraphic reports from the theaters and are preliminary. No panel has been included for the European Theater because the regular reports from this theater are late. However, a special report for 1 September gives a total of 84,000 fixed beds occupied on that date, or 4.7 percent of the reported strength. Patients in mobile hospitals of the various armies and in field hospitals directly supporting divisions are not included, although they are potential cases for fixed hospitals. On 1 September, there were 2,675 patients awaiting evacuation to the U. S. from the European Theater. The T/O capacity of the available fixed hospitals on the same date was about 7.2 percent of strength and 90 percent of the number authorized at 8 percent of strength. On the charts the "usable" line drawn across the bar for fixed T/O capacity shows the 80 percent point of maximum utilization without resort to expansion equipment. Only in the Asiatic Theater was this point exceeded. For the European Theater on 1 September about 65 percent of the T/O capacity of fixed hospitals was occupied.

## STATUS OF HOSPITALIZATION OVERSEAS, 31 JULY 1944

FIXED T/O CAPACITY AS PERCENT OF AUTHORIZATION



AVAILABLE AND OCCUPIED BEDS



\* Chinese (authorized) and American Troops

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## HOSPITALIZATION

### INTRA-THEATER EVACUATION BY AIR

The increased tempo of modern warfare has necessitated the development of methods for rapidly relieving combat units of their noneffectives during offensive action. Lines of communication by water and land are frequently long and insecure, and the transfer of patients must be accomplished without interfering with the forward movement of troops and supplies. Early evacuation by aircraft, which in their forward movement are utilized for the delivery of supplies, relieves congestion in forward area hospitals. The medical burden is thereby redistributed between the mobile installations in the combat zone and the fixed facilities of the communication zone. Effective evacuation minimizes the need for medical supplies, hospital equipment, food, and medical and non-medical personnel in the forward areas.

The French in World War I were the first to adapt the airplane to air evacuation, and in 1918 experimental use of aircraft in evacuation was undertaken by the U. S. Army at Gerstner Field, Louisiana. The Germans employed air evacuation extensively in the Spanish Civil War of 1936-38 and also in many campaigns of World War II. However, as late as December 1941, large scale air evacuation in support of a major military task force operation was still considered dangerous, impracticable, medically unsound and militarily impossible by many military authorities in this country. It was not until the spring of 1942 that the Commanding General, Army Air Forces was made responsible for the development and operation of an efficient Air Evacuation Service. Under the supervision of the Air Surgeon, plans and policies were formed and liaison established with the cooperating agencies. In December 1942, the first Air Evacuation Squadron of the AAF departed from Bowman Field, Kentucky for the North African front and within twelve months a unit was operating within each active theater of operations. The unforeseen demands made on hospital facilities during the Buna campaign necessitated an energetic evacuation policy. During these operations surgical activities in the combat area were largely confined to measures designed to render casualties transportable, and about 6,000 patients were evacuated by air over the Owen-Stanley mountains to the Port Moresby area for hospitalization.

Within the combat zone, successful air evacuation presupposes local air superiority. Planes which fly air-borne troops, paratroopers, equipment, supplies, fuel, ammunition, etc., to forward areas are not protected by the Geneva Conference while carrying patients on return trips. Where air superiority is maintained and patients are judiciously selected, evacuation by air provides a speedy, safe, and comfortable mode of transporting patients. Some idea of the importance of the program may be drawn from the statistics of air evacuation in five of the more active theaters during the first six months of 1944. The accompanying table gives the total number of evacuees on the bottom line, and the percentages of each type of patient in the body of the table. In most theaters a large proportion of the load derives from other than U. S. Army personnel.

TYPE OF PERSONNEL EVACUATED BY AIR WITHIN THEATERS  
January through June 1944

Type of Personnel	Percent of Evacuees				
	NATO	ETO	SPA	SWPA	CBI*
U. S. Army	48.1	97.1	55.9	58.0	54.2
U. S. Navy and Marines	0.2	0.5	34.2	4.8	0.0
Allied Nations	48.1	0.4	9.7	34.6	45.3
Other **	3.6	2.0	0.2	2.6	0.5
Total	100.0	100.0	100.0	100.0	100.0
Number of Evacuees	36,754	10,901	13,677	24,386	19,626

\* February through June only.

\*\* Includes POW, civilians, etc.



# HOSPITALIZATION

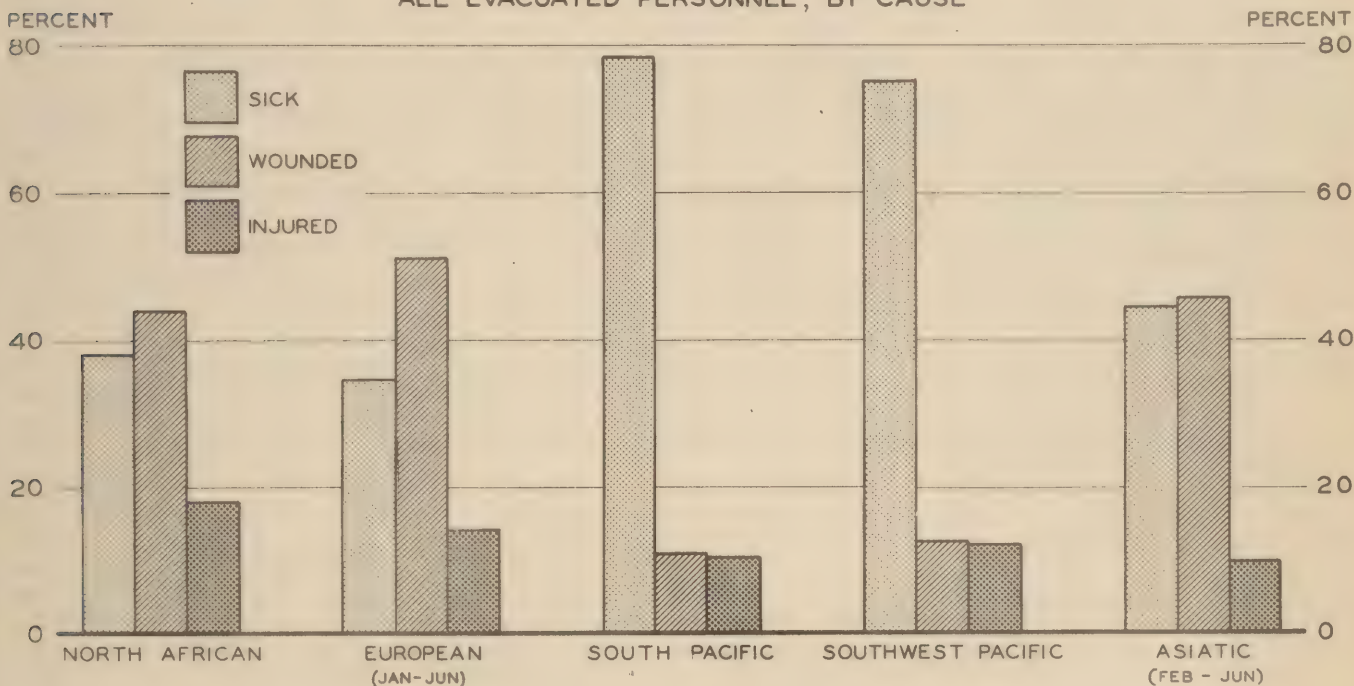
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## INTRA-THEATER EVACUATION BY AIR (Continued)

The need for air evacuation was relatively small in the European Theater until France was invaded, but since that time the program has expanded tremendously. Nearly 8,000 of the 11,000 intra-theater air evacuations reported by ETO during the first six months of 1944 were accomplished during June. It was not anticipated that air evacuation would be established in the Normandy invasion before D + 7, but the Ninth Air Force evacuated the first patients on D + 3 and by the latter part of June it was lifting more than 1,000 per day. In all five theaters, 41 percent of the evacuees were litter patients and 59 percent ambulant. The European and North African theaters evacuated an unusually large proportion of litter patients, approximately 60 percent, in contrast to the average of 25 percent for the other three theaters. This may be explained by the greater proportion of wounded evacuees in these two theaters. Cause of evacuation is shown in the first panel below as a percentage of the total air evacuees in each theater. The importance of disease patients derives from their usually greater numerical importance among admissions and noneffectives.

### INTRA - THEATER AIR EVACUATION, JAN - JUN 1944

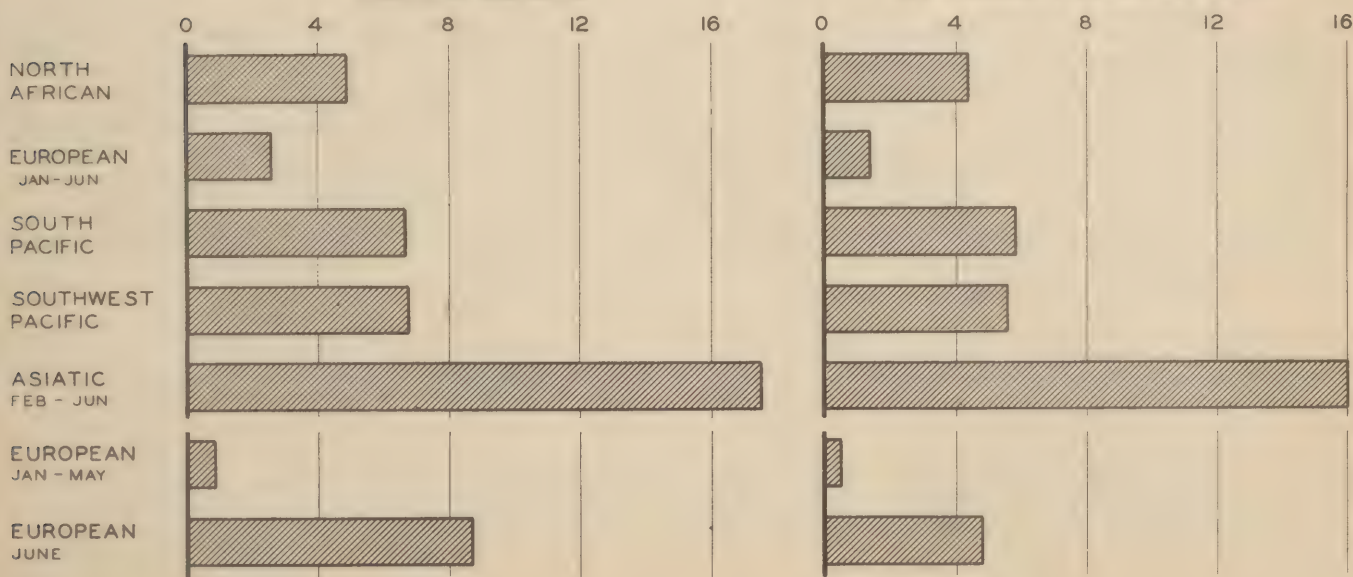
#### ALL EVACUATED PERSONNEL, BY CAUSE



#### UNITED STATES ARMY EVACUEES ONLY

##### PERCENT OF ADMISSIONS

##### PER THOUSAND STRENGTH PER MONTH



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## HOSPITALIZATION

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### INTRA-THEATER EVACUATION BY AIR (Continued)

The magnitude of the need for evacuation depends upon the rate of admission to sick report and upon the strength involved (including allied and civilian strength) as well as upon the average time or distance per patient to be evacuated. In the absence of appropriate strength and admission data on allied, POW, and civilian strength, only U. S. Army patients are shown in the second chart on the previous page. The panels show, for January to June 1944, the percentage of total admissions evacuated by air, and also the number of patients evacuated by air per thousand theater strength per month. The rate of evacuation by air, whether in terms of admissions or strength, was highest for the Asiatic Theater (February through June), where the nature of the terrain and the military situation have necessitated a centralization of hospital facilities in certain rear areas with only dispensaries and small mobile installations in the forward zones. By means of increased air evacuation it may be possible to consolidate further the medical installations in this theater so as to save personnel. Figures for the European Theater are shown separately for the period from January through May and for the month of June. The parallelism between the ratios to admissions and those to strength arises from the fact that admissions depend directly upon strength also.

The average distance and flying time per evacuee depend largely upon the location of forward medical echelons in relation to the station and general hospitals in the rear, which in turn is determined by the priorities established by the theater commander for the movement of medical installations to meet the tactical situation as well as by the geographical characteristics of the individual theater. The average flying time and average distance per evacuated patient during June are shown in the following table.

AVERAGE DISTANCE AND FLYING TIME PER PATIENT EVACUATED BY AIR, BY THEATER  
June 1944

Theater	Average Distance per Patient (Miles)	Average Flying Time per Patient (Hours and Minutes)
North African	113	0:50
European	156	1:30
South Pacific	719	5:31
Southwest Pacific	454	3:22
Asiatic	268	2:07

Observations by medical officers indicate that practically all types of patients are safely evacuated by air if they are transportable at all. Where flights will not reach a maximum altitude of more than three to five thousand feet, even pneumothorax and abdominal wound cases may be moved without deleterious effect when patients have been properly prepared prior to movement. However, precautions must be taken not to evacuate patients farther to the rear than their physical condition or the military situation necessitates. The farther a patient is removed from the combat area, the more difficult is the task of reconditioning him for return to combat duty. This is particularly true in the case of neuropsychiatric and wounded patients.

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# HOSPITALIZATION

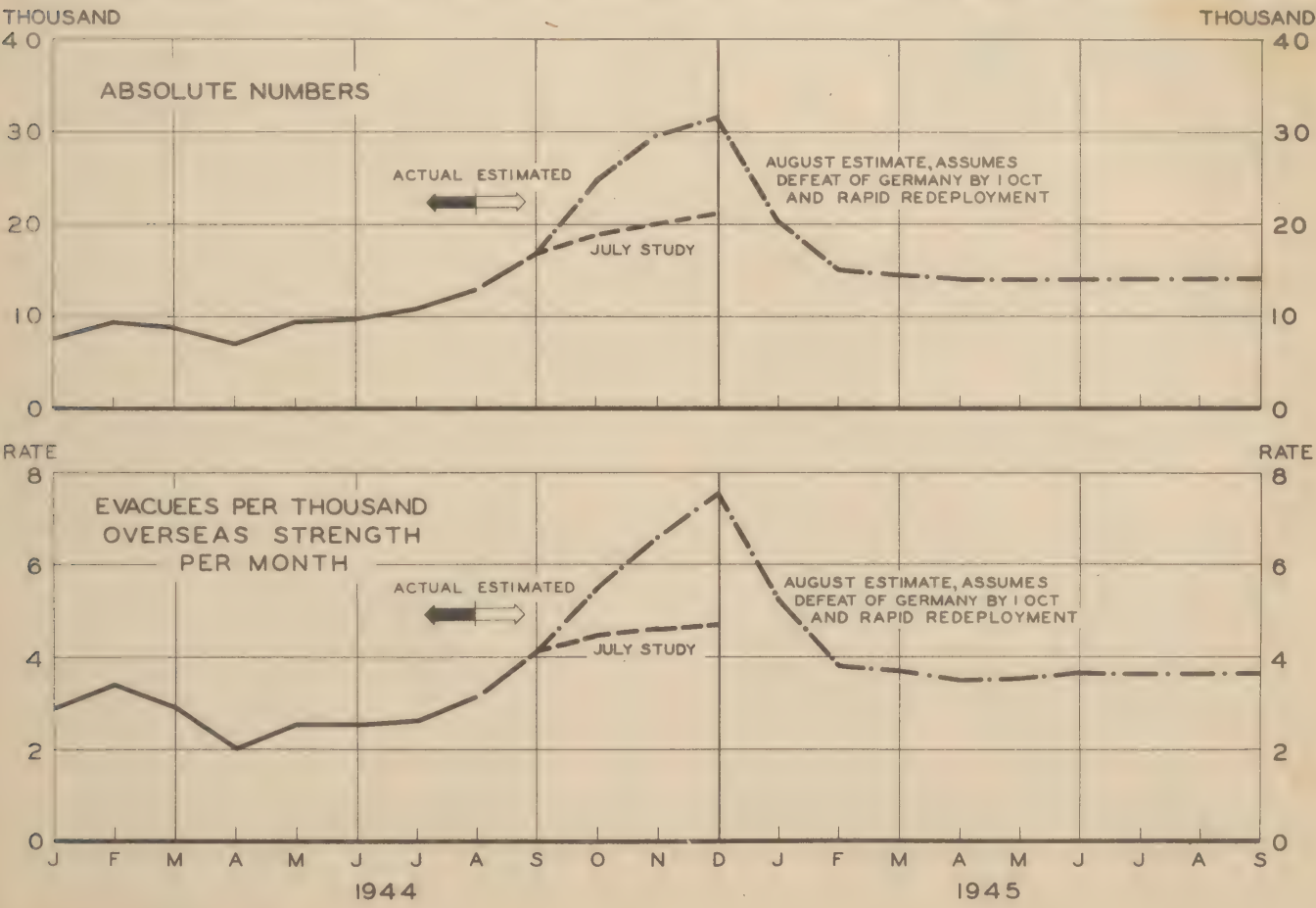
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## EVACUATION FROM OVERSEAS

The final report for July gives about 10,800 patients evacuated to the United States. Although evacuation data for August are not yet available in final form, preliminary counts place the number of patients received in this country at 13,000 or 3.1 per 1,000 overseas strength, about 65 percent of whom arrived by boat. This preliminary figure is 1,000 short of the forecast revised in July and published in HEALTH for that month. The backlog of patients awaiting evacuation overseas at the end of each month has been building up slowly and on 30 August there were about 9,700 of whom 1,500 were prisoners of war captured in France and Italy. A considerable backlog of patients has been accumulating in the European Theater because insufficient hospital ship capacity has been available to the theater for evacuation purposes and returning troop ships have not been fully employed for this purpose. Because of the shortage of troop ships in the North African Theater, and the need for hospital ships in support of the invasion of southern France, a large portion of the hospital ship capacity has been diverted to North Africa. In view of the general shortage of hospital ships (see HEALTH for July) it would seem imperative that maximum use be made of returning troop ships for purposes of evacuation. The charts below show, in both absolute form and as rates per thousand overseas strength, the numbers of evacuees debarked or to be debarked each month in the United States. The forecasts are shown as a dashed line extending to the end of 1944.

This month a new forecast is shown on the assumption of the defeat of Germany by 1 October. On this assumption, in order to implement redeployment of facilities directly to the Pacific, it would be necessary to accelerate the evacuation of patients from ETO and NATO. It is assumed that this speed-up would begin immediately after the cessation of hostilities in Europe and that the transfer of the backlog of patients would be accomplished within four months, producing a peak in December of about 30,000 patients, 25,000 being from the European continent. However, it is also possible that the inactivation now planned for a number of general hospitals in Europe may be delayed so that patients may remain hospitalized overseas until such time as there are sufficient vacant beds in named general hospitals in the U. S. and the means are made available for patient evacuation. These estimates do not take into account any augmentation of the expected number of evacuees from the Pacific areas which might occur as a prelude to the opening of large scale offensive action.

### ACTUAL AND ANTICIPATED EVACUATION OF PATIENTS FROM OVERSEAS



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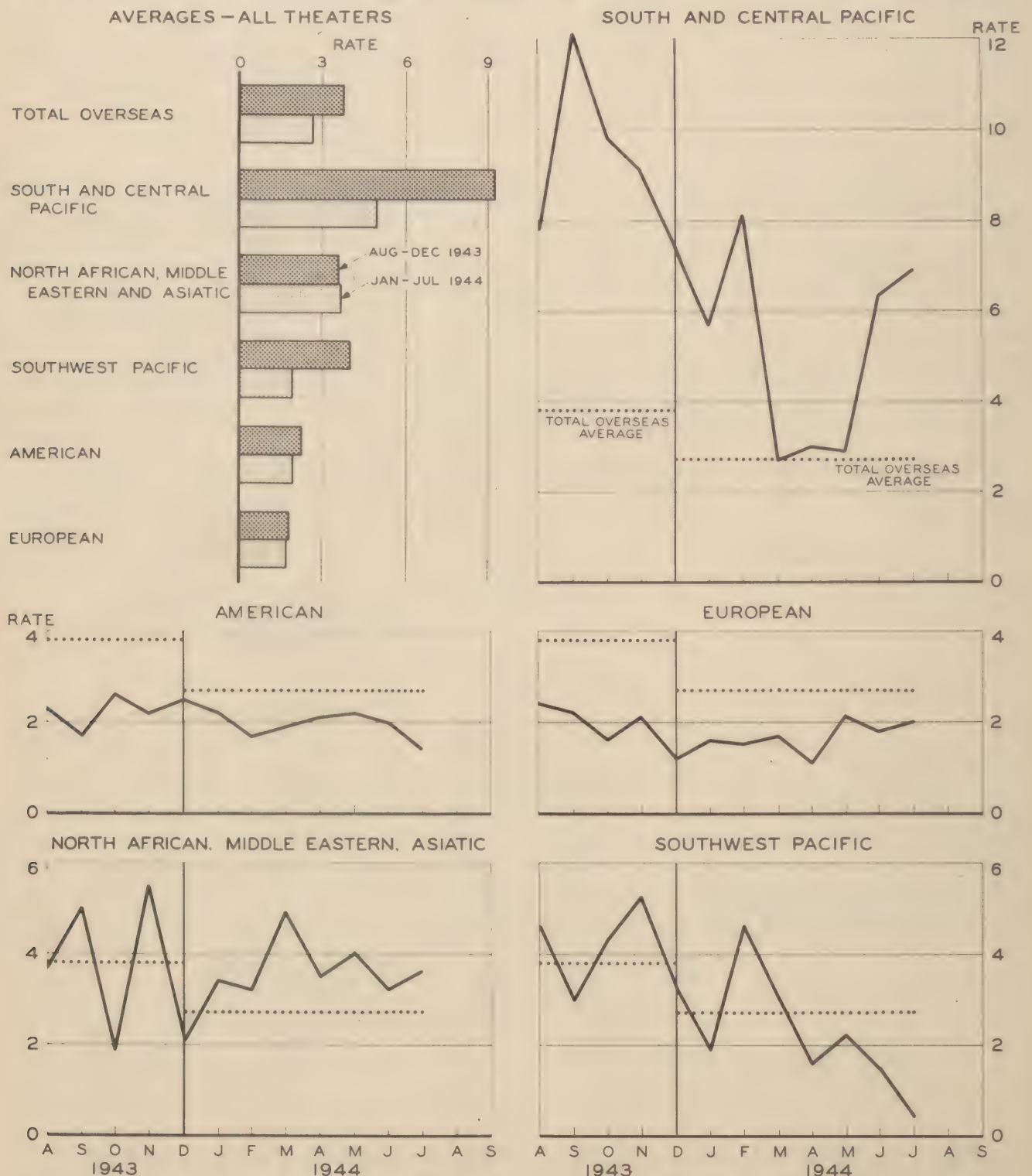
# HOSPITALIZATION

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## EVACUATION FROM OVERSEAS (Continued)

To show the theater components of the total evacuation rates given on the previous page, the panels in the chart below compare evacuation rates per thousand strength per month for each individual theater, or group of commands, with the average experience of all theaters combined. The horizontal lines in each panel represent the average rate for all theaters for the period indicated. The rate for the European Theater increased during July by only about 10 percent, and the current level of 2.0 is well below the overseas average. During July 37 percent of the evacuees to the U. S. arrived by air, but 77 percent of the evacuees from the European Theater were transported by this method.

## EVACUEES PER THOUSAND STRENGTH PER MONTH, OVERSEAS THEATERS



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# HOSPITALIZATION

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## CAPACITY AND UTILIZATION OF Z.I. HOSPITAL FACILITIES

At the end of August there were approximately 290,000 authorized beds in 482 hospitals (both AAF and ASF) in the Zone of the Interior.

There was a total of 415 station and regional hospitals with an authorized capacity of over 173,000 beds, equal to 4.7 percent of the troop strength served by these hospitals. The Army Air Forces had about 53,500 authorized beds in 222 station and regional hospitals, or 4.2 percent of troop strength served. ASF station and regional hospitals consist of two components:

1. Fourteen hospitals under the Chief of Transportation, serving the staging areas and ports of embarkation. These hospitals have over 12,000 authorized beds, equal to 6.8 percent of the troop strength served at that particular time.

2. One hundred and seventy-nine hospitals under the command of the commanding generals of the service commands. These station and regional hospitals contained about 107,500 authorized beds, constituting 4.8 percent of troop strength served. It is to be noted that six of the service commands exceed this average ratio, and that the main influence in a downward direction is exerted by the largest of the service commands, the Fourth, which has exercised very effective control over its bed authorizations.

At the time these figures were reported, Army regulations called for an authorized bed capacity for station hospitals equal to 4 percent of troop strength served. Authorizations for regional hospitalization were based on 0.5 percent of troop strength thus served. The combined formula for station and regional hospitals roughly approximated 4.5 percent. To the extent that troops received regional hospitalization in general hospitals, the combined formula will tend to be below 4.5. It should be noted that the process of reducing bed authorizations in conformity with the diminution of troop strength in the Z.I. necessarily involves a time lag. Assuming a conservative time lag of 60 days, it is found that the Army Service Forces have an authorized bed capacity in the station and regional hospitals equal to 4.4 percent of troop strength served at the end of June, or 0.4 percent less than on the basis of the lower troop strength served at the end of August. Since the strength of the Army Air Forces has remained stable during the 60-day period, the ratio of 4.2 is unchanged.

In light of the favorable hospitalization experience in the Z.I. over the last four years, which reflects advances in medicine and in drugs as well as the passage of the initial training phase of the Army, The Surgeon General has found it feasible to recommend a reduction in station hospitalization from 4 to 3.5 percent of troop strength served. Taking the requirement of 0.5 percent of regional hospitalization into account, the proposed revision in the regulations should result in an aggregate station and regional hospitalization

BED CAPACITY AND OCCUPANCY AT STATION AND REGIONAL HOSPITALS  
25 August 1944

Command	Number of Hospitals	Hospital Beds				Convalescent Spaces		
		Authorized Capacity		Occupied		Authorized	Occupied	
		Number	Percent*	Number	Percent of Capacity		Number	Percent
Total, Station and Regional	415	173,379	4.7	81,902	47.2	8,856	4,845	54.7
ASF, Service Commands	179	107,621	4.8	49,787	46.3	7,205	4,009	55.6
First	6	1,490	6.4	368	24.7	-	-	-
Second	15	4,000	4.3	1,594	39.9	-	-	-
Third	14	10,323	5.4	5,006	48.5	200	104	52.0
Fourth	30	27,222	4.0	16,325	60.0	448	369	82.4
Fifth	8	5,376	4.6	2,405	44.7	188	144	-
Sixth	7	5,248	5.5	1,793	34.2	-	-	-
Seventh	29	11,523	5.7	4,226	36.7	1,227	431	76.6
Eighth	34	28,917	5.0	10,873	37.6	4,292	2,347	54.7
Ninth	32	12,186	5.9	6,313	51.8	850	614	72.2
MDW	4	1,336	4.3	884	66.2	-	-	-
ASF, Transportation								
Corns	14	12,289	6.8	3,639	29.6	-	-	-
ARMY AIR FORCES	222	53,469	4.2	28,476	53.3	1,651	836	50.6

\* Percent of strength served.

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## HOSPITALIZATION

## CAPACITY AND UTILIZATION OF Z.I. HOSPITAL FACILITIES (Continued)

formula of about 3.9 percent. It is expected that the authorized bed capacities reported at the end of November will reflect this revision of the regulations.

At the end of August there were 60 general hospitals with over 113,000 authorized beds. Fifteen thousand of these beds were located in six debarkation hospitals. It appears there were available in the general hospitals for definitive treatment approximately 100,000 beds less an allowance for dispersion of 15 percent. There were also 23,000 convalescent spaces in convalescent hospitals in their initial stages of operation, about 5,500 being Army Air Force beds. There were also convalescent annexes in most general hospitals, in some regional hospitals, and in several station hospitals. All spaces tabled under convalescent hospitals except Avon, Mitchell, and Welch represent the large convalescent hospitals operated in conjunction with general hospitals. Convalescent spaces under general hospitals are small convalescent annexes at other than convalescent-general hospitals.

BED CAPACITY AND OCCUPANCY AT GENERAL AND CONVALESCENT HOSPITALS  
25 August 1944

Command	Number of Hospitals	Hospital Beds			Convalescent Spaces		
		Authorized Capacity	Occupied		Authorized	Occupied	
			Number	Percent of Capacity		Number	Percent
<u>General and Debarkation Hospitals</u>	60	113,279	52,933	47	9,333	3,419	37
<u>GENERAL (ASF)</u>	54	98,026	48,879	50	9,132	3,325	36
<u>Service Commands</u>							
First	2	4,140	2,497	60	-	-	-
Second	4	8,805	5,784	66	-	-	-
Third	3	4,815	3,079	64	680	341	50
Fourth	9	16,994	6,683	39	2,396	759	30
Fifth	8	12,741	6,574	52	1,295	727	32
Sixth	4	5,884	3,220	55	-	-	-
Seventh	4	8,928	5,104	57	1,072	379	35
Eighth	10	19,110	9,270	49	2,067	1,220	-
Ninth	9	14,552	5,087	35	1,625	479	25
<u>Surgeon General</u>	1	2,057	1,581	77	-	-	-
<u>DEBARKATION (ASF)</u>	6	15,253	4,054	27	1,000	96	47
<u>Service Commands</u>							
Second	1	4,134	855	21	-	-	-
Third	1	1,777	167	9	-	-	-
Fourth	1	1,270	216	17	-	-	-
Ninth	3	8,072	2,816	35	1,000	94	47
<u>CONVALESCENT HOSPITALS</u>	8	3,017	1,671	55	22,847	4,809	21
<u>ARMY SERVICE FORCES</u>	3	533	48	9	17,394	3,676	21
<u>Service Commands</u>							
First	-	-	-	-	1,500	154	10
Second	-	-	-	-	1,732	153	43
Fourth	1	350	37	11	3,650	312	9
Fifth	-	-	-	-	3,000	465	16
Sixth	-	-	-	-	1,203	312	27
Seventh	-	-	-	-	150	69	46
Eighth	-	-	-	-	292	386	39
Ninth	1	183	11	6	3,317	79	2
MDW	-	-	-	-	1,643	1,097	67
<u>Surgeon General</u>	1	-	-	-	200	47	24
<u>ARMY AIR FORCES</u>	5	2,484	1,623	65	5,453	115	21



# MORTALITY

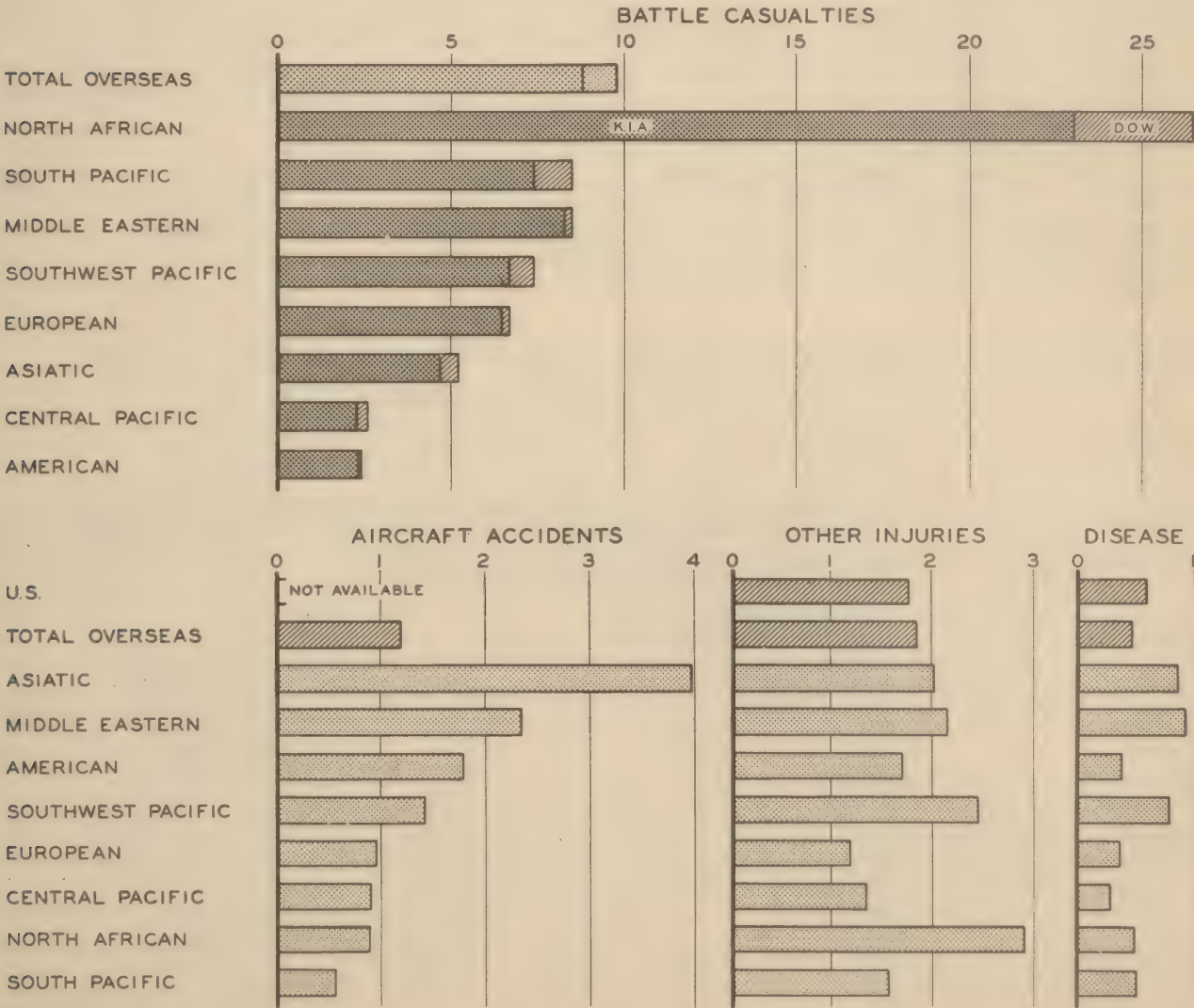
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## MORTALITY, U. S. AND OVERSEAS

In the charts below, death rates per thousand men per year are shown for each theater from the date of its opening through May 1944, the latest month for which reliable data are available. Deaths are given separately for battle casualties, non-combat aircraft accidents, other nonbattle injuries, and disease. Theater rates for deaths from disease and non-battle injury other than aircraft accidents are ranked according to the incidence of aircraft accidents, the greatest single cause of nonbattle deaths. In the Asiatic Theater, which has the highest rate, deaths from aircraft accidents are double those for all other nonbattle causes. During May 1944, the Asiatic Theater had the greatest air activity as measured by non-combat flying hours per thousand theater strength for all types of planes. However, in any comparison of air accidents among theaters on the basis of hours flown, it is well to take cognizance of the fact that the types of planes most extensively used, and therefore the men per crew, vary widely among theaters. Geographical hazards of individual theaters likewise affect accident rates. In relation to flying hours the Asiatic Theater rate is not extreme. The South and Southwest Pacific taken together had the lowest number of non-combat flying hours in relation to strength during May and also the fewest deaths per thousand hours flown. Deaths from nonbattle causes excluding aircraft accidents are greatest in the North African and Southwest Pacific theaters, both of which have recently instituted accident prevention programs. Only known deaths are included in the battle casualty panel.

Screening of men prior to overseas shipment and the generally higher age level of troops in the U. S. may account for the difference between the U. S. and overseas rates for death from disease. When theaters are considered individually, incidence above U. S. levels occurs in the Asiatic, Middle Eastern, and Southwest Pacific areas where tropical diseases take a relatively heavy toll.

### DEATHS PER THOUSAND MEN PER YEAR. BY THEATER WORLD WAR II TO MAY 1944



RESTRICTED



# MORTALITY

## FATALITY FROM COMMUNICABLE DISEASE

The progress made by medical science in combating disease is well illustrated by the recent experience of the Army with some of the acute communicable diseases. The chart below compares the case fatality rates (deaths from any disease per 100 patients having this disease) for selected communicable diseases during World War I and World War II. The rates for World War II are based upon all deaths among Army personnel in the U. S. during 1942 and 1943 and upon the experience of the Army overseas from January 1942 through September 1943. The insert table at the bottom of the chart lists the numbers of deaths and the case fatality for each of the diagnoses considered. Provisional World War II data, based upon the overseas experience during 1943 only, were summarized in HEALTH for February 1944.

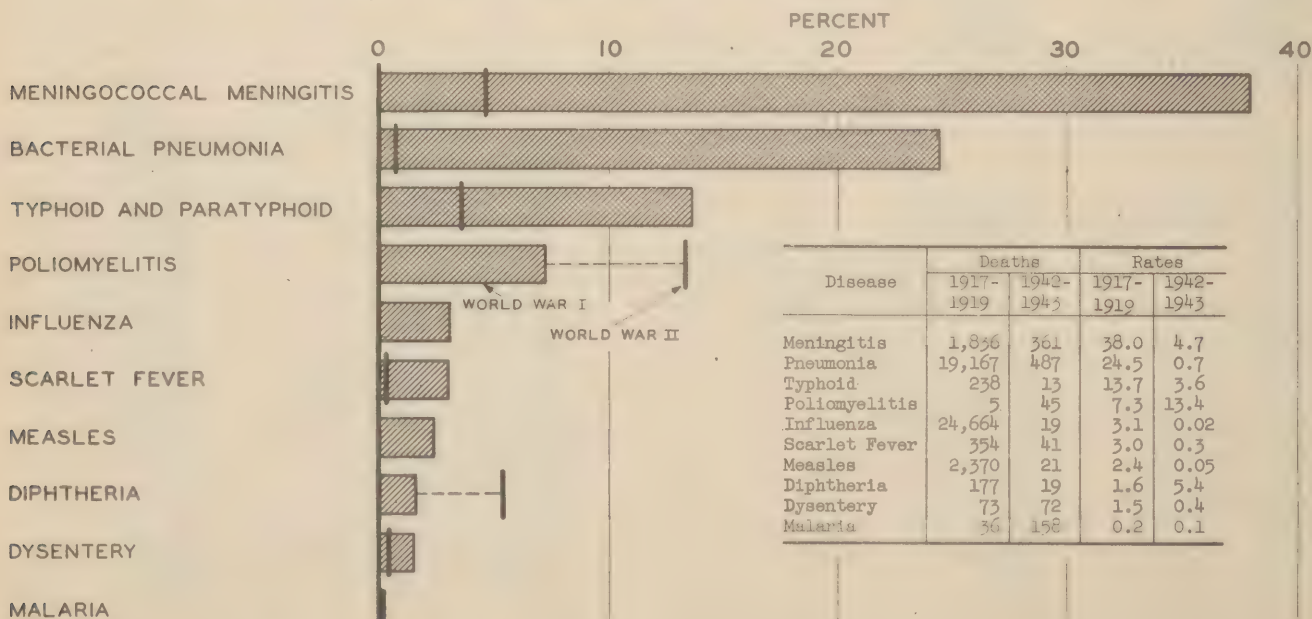
Except for poliomyelitis and diphtheria the case fatality associated with all of the diseases noted has decreased markedly during the 25 years since World War I, but the incidence of diphtheria has declined greatly, and that of poliomyelitis is about the same as in World War I. The therapeutic use of sulfonamides has been largely responsible for reducing the deaths from bacterial pneumonia, dysentery, and meningococcal meningitis. Poliomyelitis has had the highest case fatality of the diseases shown for this war, but the comparison with World War I cannot be pressed, for there were very few cases during World War I. The case fatality rate for diphtheria is more than twice as high as the World War I rate. This high rate derives from a small number of cases occurring in the European Theater during a period of nine months.

During World War I the pandemic of influenza accounted for more admissions to hospital and quarters and more deaths than any other single cause. Although the recorded case fatality rate was only 3.1 percent, the true fatality was doubtless much lower, for most deaths among Army personnel hospitalized for influenza were caused by bacterial complications secondary to the influenza, especially pneumonia. If the World War I rate for influenza is regarded as overstated by a wide margin, that for pneumonia is too low. The clinical picture of the 1918 epidemic of pneumonia was such that the comparison between the World War I rate of 25 percent and the World War II rate of .7 percent should not be stressed. Evidence of the tremendous success of sulfonamide therapy in bacterial pneumonia is, however, gained from a comparison of the present rate and that of 10 percent during the early 1930's and 7 percent during the period 1936-1938.

Malaria and dysentery have caused many thousands of admissions among U. S. Army troops operating in tropical and subtropical areas, but proportionately few deaths. In fact the present case fatality rates are lower than those of World War I. Malaria has responded well to atabrine treatment while the dysenteries have been successfully treated with sulfa-guanidine and sulfadiazine.

## DEATHS PER HUNDRED CASES OF SELECTED COMMUNICABLE DISEASES

TOTAL ARMY, WORLD WAR I-WORLD WAR II\*



\* January 1942 through September 1943 for overseas troops.



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## MISCELLANEOUS

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### HEALTH PROBLEMS OF CIVIL AFFAIRS

The concept of civil affairs is not new to the Army, but as a military activity it has been extensively developed only during the present war. As an indication of the relative importance with which activities pertaining to civil affairs and military government are regarded, a General Staff Section (G-5) has been established to deal with these problems at both SHAEF and AFHQ. Under these Headquarters, Theaters, Army Groups, Armies and at times lower echelons likewise have their civil affairs sections.

Thus far the field of responsibility broadly known as public health has been a major component of civil affairs activities both in Italy and in France. Its importance rests on the following considerations:

Military operations can be seriously impeded by widespread disease in the civil population, either through extension of disease to the military forces or through disruption of community activities supporting military operations. Responsibility for preventing such an occurrence, while resting primarily upon the commanding general and the chief surgeon of the occupying forces, has usually been delegated to the civil affairs section.

Since public health is an integral part of government, the governing authority in an occupied country must endeavor to protect the civil population against epidemics of preventable disease and provide minimum facilities for medical care. Standards of performance are, by implication, substantially those existing prior to military occupation, and are to be attained almost entirely through the use of local resources in personnel, equipment, and facilities, with supervisory and directional services and a limited amount of supplementary emergency services and facilities, provided by the governing authority.

The character of modern warfare, with its rapid movement, utilization of cities for defensive strong points, and aerial bombardment, greatly enhances the danger to the civil population. Common humanitarianism and the needs as justified by military necessity for securing the good will and cooperation of the civil population have impelled the Allied military forces under such circumstances to assist in providing medical care for civilians who come within their jurisdiction.

The public health activities of civil affairs during the operations in Sicily and Italy may be divided roughly into the emergency and the organizational phases. The emergency phase corresponds to the period of active combat and is limited territorially to the immediate area of combat operations. The medical problems of this phase have of course varied tremendously depending upon the amount of destruction encountered and the number of civilian casualties.

The civil affairs medical officer was most often useful in providing a focal point about which some organized medical effort could be made to provide medical, hospital and nursing care for the wounded, and in providing certain essential medical supplies such as bandages, disinfectants, ether, morphine, and sulfonamide drugs. Throughout, the greatest handicap has been inadequate transportation facilities for the medical officer, but this has been due to the logistical situation rather than to lack of planning. Perhaps the most striking feature of this phase has been the relatively small number of civilian casualties that occurred in most operations. At Messina, Naples and Cassino, civilian casualties were not numerous despite the activity of bombers and heavy artillery. Thus far, in most cities of France civilian casualties have been light.

Another important hazard to health is occasioned by damage to water and sewerage systems. No serious outbreak of water-borne disease among civilian populations has occurred as a result of combat operations. This may be attributable in part to the speed with which water systems were repaired under the auspices of civil affairs and to the use of emergency chlorination facilities.

The emergency phase of health activities quickly merges into the organizational phase, in which an attempt is made to re-establish the normal health services and facilities of the community. Medical problems incident to this phase may be grouped in four categories, namely, infectious disease control, implementation of medical services and hospital facilities, medical supply, and sanitation.

The experience in the Naples area may be briefly recounted as illustrative of most of the health problems likely to be encountered in Europe. The 5th Army entered the city on 1 October 1943 after air bombardment which was quite accurately confined to airfields, dock



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## MISCELLANEOUS

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### HEALTH PROBLEMS OF CIVIL AFFAIRS (Continued)

and harbor facilities, and to the railway terminal. On the surface the city appeared to offer no serious health problems. Civilian casualties were not heavy, the water system was largely intact, and it was possible to proceed almost immediately to the organizational phase of public health.

But from a public health standpoint explosive elements were present. What little health organization existed was not functioning; the city was crowded with refugees from areas further north; because of continued enemy bombing, a large proportion of the population at each air raid alarm jammed into the cellars and tunnels underlying the city; the hospitals had been largely stripped of blankets and other bedding; medical supplies were low; and food was in very short supply. Added to this, Naples was being used as the main port and supply base supporting the 5th Army and, to a certain extent, the 8th Army, and the city was filled with Allied soldiers.

As could be anticipated, a succession of health problems arose. In general, the civil public health group in that area met these problems in a creditable manner with resulting profit to the Allied armies as well as to the people of Naples.

In the field of infectious disease, activities centered principally on the control of typhus fever, malaria, venereal disease and smallpox. The epidemic of typhus fever has been widely publicized. A few cases were reported in November, the number rapidly increased in December, and in January a total of 1,014 new cases were reported. In the face of an expanding epidemic, the U. S. A. Typhus Commission was called in to institute a control program. This program, based on case-finding, contact delousing with DDT, mass delousing, and immunization, was eminently successful. Coincident with a declining attack rate, direction of the control program was returned to the civil affairs group on 20 February 1944. A low incidence of typhus has continued.

In April, 35 cases of smallpox were reported in Naples, simultaneously with an outbreak in Southern Italy. The vaccination program, which had already been reactivated, was rapidly expanded. By the end of July, 338,705 civilians in Naples City had been vaccinated, and a total of 446,257 vaccinations had been made in Naples Province. Up to July 31, there were 351 cases of smallpox reported in Naples proper and a total of 870 cases for the province. The case fatality rate was low.

Before the war malaria, which for many years has been a problem in southern and central Italy, was fairly well controlled by an active anti-malaria campaign. As a result of military operations, the principal malaria control installations in the Volturno and Garigliano river basins in Naples Province were heavily damaged, drainage canals were demolished, hydraulic pumps were destroyed as well as the power lines which fed them, and the drugs and equipment of anti-malaria stations were either destroyed or stolen. Bomb craters, tank traps, trenches, and fox holes afforded additional opportunities for mosquito breeding.

In February, the civil public health group re-established an active malaria control program, and rapidly expanded it during the pre-malaria season. Drainage operations, dusting, and oiling of mosquito breeding areas were carried out by Italian labor. In addition, a number of field experiments were made on the use of DDT mixed with oil as a larvicide and as a spray in houses and barns. The malaria control staff of the Allied Control Commission was augmented by a number of malariologists of the Rockefeller Foundation who served with the Commission in the capacity of civilian consultants to The Surgeon General.

When the Germans retreated beyond Rome, they flooded large areas of the reclaimed Pontine Marshes and other coastal areas, historically famous as malaria mosquito breeding areas. Anti-malaria work was begun immediately under the direction of the civil public health group. As of 12 August 1944, 5,000 civilians were reported as engaged in control work in the Pontine Marshes, and over 6,000,000 tablets of atabrine had already been distributed. Up to the middle of August, the incidence of malaria among military personnel and among civilians in this area had not been reported as unduly high.

Military personnel in and about Naples escaped typhus, smallpox, and malaria, but not venereal disease. Discussions of this subject appeared in HEALTH for March and July 1944. Rates were excessive for the first few months of occupation and gradually declined to



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## MISCELLANEOUS

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### HEALTH PROBLEMS OF CIVIL AFFAIRS (Continued)

a low point of approximately 100 per thousand per annum in June. From January on, the Public Health Subcommittee of the Allied Control Commission engaged in an active venereal disease control program in collaboration with the military authorities. The civilian component of this program consisted of the establishment of numerous treatment centers, provision of over 700 beds for isolation of infected civilians, establishment of laboratory facilities for diagnosis, and a certain amount of educational work.

By June the control program in the Naples area had been completely taken over by local health authorities, and steps had been taken by the Italian Government to establish for the first time a venereal disease control section in its national health department.

With respect to hospital services, civil public health officers were confronted in Naples with a serious shortage of civilian hospital beds. This was due principally to extensive damage by bombing to the Morvillo hospital, to looting of blankets and bedding, and in the early stages to requisitioning of hospital space for use of the military forces. The shortage was further aggravated by the typhus epidemic and the need for isolation facilities for venereal disease patients. Some supplies were obtained from military stocks and later civil affairs supplies became available in larger quantities. By April the hospital bed situation was much improved.

In regard to her water supply, Naples was more fortunate than many other cities in the path of the fighting in Italy. Sanitary engineers found that the water and sewage system had sustained comparatively little damage and steps were taken as soon as possible to make needed repairs. One of the greatest problems was the lack of chlorination, the available chlorine being needed more urgently elsewhere. Despite this lack of chlorination, periodic sampling showed a continuous improvement in both the quality and quantity of water.

As in other cities the collection and disposal of garbage and refuse presented difficulties in Naples, due to the continuous bombing, unsanitary and overcrowded living conditions of the people, and lack of vehicles for collecting. A system of collections was organized using Italian vehicles and personnel, an educational program was instituted, and laws against indiscriminate dumping were strictly enforced in Italian civil courts. By the end of April sanitary conditions had improved beyond expectations.

In the first months of the Italian campaign civil affairs medical supply presented many problems. The difficulties were due principally to inadequate transportation facilities and to the lack of officers experienced in medical supply procedures. By January 1944, however, both of these deficiencies had been partially corrected and a good medical supply system was being developed. At first distribution was made from a central depot in Naples directly to various regional civil affairs officers, but later distribution was made through Italian wholesalers. It is known that some black market operations in medical supplies occurred, but it is believed that these did not reach serious proportions.

The health problems encountered in Naples, while probably greater in degree, are fairly typical of those met elsewhere in Italy. Fragmentary reports from France indicate that these same problems are being encountered there. To a much greater extent than in Italy, however, the French health authorities are assuming leadership in meeting these problems.



MISCELLANEOUS

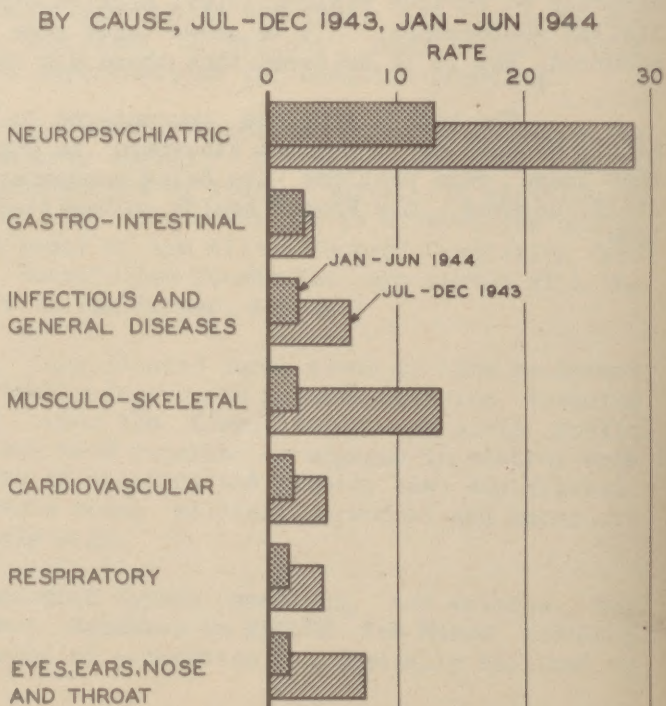
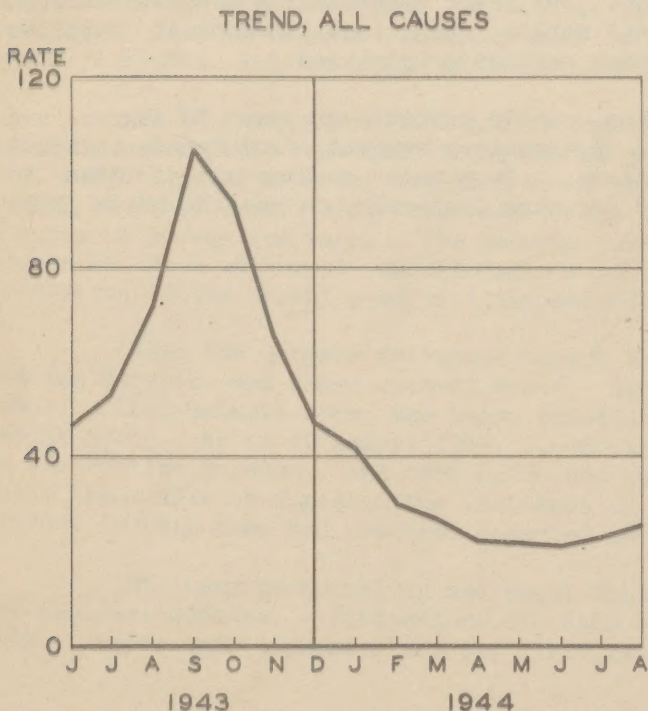
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RECENT TRENDS IN DISCHARGE FOR DISABILITY

During the first six months of 1944 some 94,000 enlisted men were discharged from the Army for physical reasons under Section II of AR 615-360. In addition about 20,000 were discharged under Section VIII for inaptitude. All discharges totaled 1.6 percent of the average enlisted strength during the first half of 1944, while disability discharges alone accounted for 1.3 percent. During the first six months of 1943 there were more than 239,000 discharges for disability (including 55,000 limited service not meeting current physical or mental standards), or 3.6 percent of the average enlisted strength. The chart below shows the trend of the rate of discharge for physical reasons. The decline during the first six months of 1944 reflects chiefly the policy announced in W. D. Circular No. 293, which stated that no enlisted man was to be discharged for physical reasons so long as there was some position in the Army which he could fill. It was also influenced by the reduction in the numbers of newly inducted men among whom the discharge rate has been relatively high. The small rise during July and August can for the most part be attributed to the increasing number of discharges for men with overseas service, the number of evacuees from overseas having mounted sharply in recent months. However, there has been only a slight increase in the number of disability discharges given to battle casualties, and the discharges are yet to come from among the battle casualties suffered in the invasion of France. The number of combat wounded enlisted men qualified for limited service only who have been discharged upon their own request under Section X in accordance with W.D. Circular 164, 1944, was small prior to June, when rescission of paragraph 2 of W.D. Circular 164 gave combat casualties an option of discharge under Section II of AR 615-360.

Neuropsychiatric discharges continue to be the largest single class of disability discharges, as indicated below. Even though the rate of discharge for neuropsychiatric disorders has, during the first half of 1944, decreased to less than 50 percent of that reported for the last six months of 1943, neuropsychiatric discharges currently account for almost 50 percent of all discharges in comparison with 40 percent in the latter part of 1943. Psychoneurosis continues to be responsible for about three-quarters of all the neuropsychiatric discharges; psychosis is one of the few causes of discharge for which the rate has not decreased. Analysis of disability discharges indicates that traumatism and neuropsychiatric disorders, which reflect battle casualties, are much more important causes of discharge for men with overseas service than they are for men whose service has been confined to the United States. Discharges for tuberculosis also appear to be higher among men with overseas service. On the other hand, discharges for musculo-skeletal, genito-urinary, cardiovascular, and respiratory diseases other than tuberculosis, and for infectious and general diseases, are relatively less frequent among men who have had overseas service.

DISABILITY DISCHARGES PER THOUSAND ENLISTED MEN PER YEAR



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